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VOL. XIV. NO. 6.

U.S. DEPARTMENT OF AGRICULTURE

PEACE ON EARTH • GOOD WILL TOWARD MEN



GLEANNING
IN

BEE CULTURE

DEVOTED
TO
BEEKEEPING

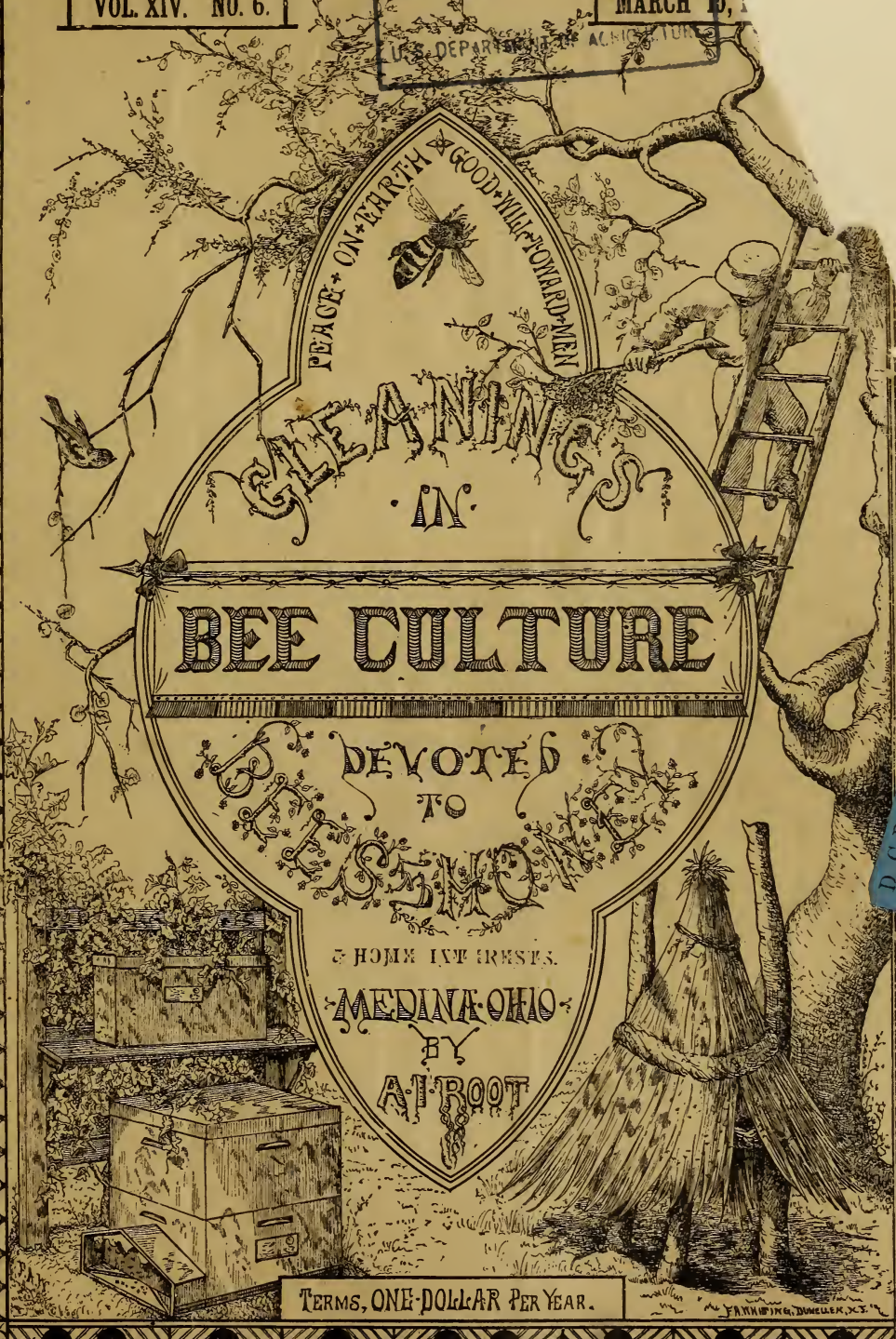
3 HOME INTERESTS.

MEDINA OHIO

BY

AL ROOT

TERMS, ONE DOLLAR PER YEAR.



D G Perry

ENTERED AT THE POSTOFFICE, MEDINA, OHIO. AS SECOND-CLASS MATTER.

SHIPPING-CANS FOR HONEY



"Iron Jacket" Honey-Cans.

I presume the friends are aware that ordinary tin cans are not very safe for shipping full of honey, unless boxed or crated. The cans above are ready to be shipped anywhere.

PRICES:

1 Gallon,	25c each
2 "	38c "
3 "	47c "
5 "	58c "
10 "	94c "

On an order for 10 or more, we will make a discount of 5 per cent, and for 100 or more, 10 per cent, and the order may be made up of different sizes.

By figuring 11 lbs. of honey to the gallon, you can easily see how many pounds each can holds. They are made from tin plates. A sheet-iron casing, with wood bottom, protects them from bruising. The iron jacket is stronger than wood, and far more serviceable. They neither shrink nor swell, and do not split nor fall apart. Every can is tested by steam, and guaranteed to be tight.

A. I. ROOT, Medina, O.

The ABC of POTATO CULTURE.

HOW TO GROW THEM IN THE LARGEST QUANTITY, AND
OF THE FINEST QUALITY, WITH THE LEAST EXPENDITURE
OF TIME AND LABOR.

Carefully Considering all the Latest Improvements in this Branch of Agriculture up to the Present Date.

ILLUSTRATED BY TWENTY ENGRAVINGS.

Written by T. B. TERRY, of Hudson, O.

Table of Contents: Soils, and their Preparation.—Manures, and their Application.—When, and How Far Apart Shall we Plant?—Shall we Plant Deep or Shallow?—Shall we Plant in Hills or Drills?—How to Make the Drills, and Fill Them.—Selection and Care of Seed.—Cutting Seed to One Eye.—Planting Potatoes by Machinery.—Harrowing after Planting.—Cultivating and Hoeing.—Handling the Bugs.—The Use of Bushel Boxes.—A Top Box for the Wagon.—Digging.—Storing.—What Varieties shall we Raise?—Potato-growing as a Specialty.—Best Rotation where Potatoes are made a Special Crop.—Cost of Production, and Profits.

PRICE 35 CTS.; BY MAIL, 38 CTS.

A. I. ROOT, - MEDINA, OHIO.

THE ABC OF CARP CULTURE

JUST ISSUED.

A COMPLETE TREATISE Upon the Food Carp and its Culture.

INCLUDING PLANS AND SPECIFICATIONS, AND FULLEST INSTRUCTIONS FOR THE CONSTRUCTION OF PONDS, AND EVERY THING PERTAINING TO THE BUSINESS OF RAISING CARP FOR FOOD.

By MILTON P. PEIRCE,

Secretary of the American Carp Cultural Association.

Illustrated by Many Fine Engravings,

With a Copious Index.

PRICE 35 CTS.; BY MAIL, 40 CTS.

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Reduction in Prices of the PASTEBOARD BOXES FOR ONE-POUND SECTIONS OF COMB HONEY.



This box has a bit of "red tape" attached to it to carry it by. It makes a safe package for a single section of honey for the consumer to carry, or it can be packed in a trunk, if he wants. It can be opened in an instant. The price of the box is 2 cts. each, set up; in the flat, 15 cts. for 10; package of 25, 30 cts.; \$1.00 per 100; or \$9.00 per 1000; 10,00, \$80. If wanted by mail, add \$1.00 per hundred for postage. Colored lithograph labels for putting on the sides, two kinds, one for each side, \$3.00 per 1000. A package of 25, labeled on both sides, as above, 50 cts. By mail, 30 cts. more. They can be sold, labeled on one side or both sides, of course. We have only one size in stock, for Simplicity sections. Sample by mail, with a label on each side, 5 cts. If you want them shipped in the flat, labels already pasted on, the price will be ten cents per hundred for putting them on.

Your name and address, and the kind of honey, may be printed on these labels, the same as other labels. The charge for so doing will be 30 cts. per per 100; 250, 50 cts.; 500, 75 cts.; 1000, \$1.00.

A. I. ROOT, Medina, Ohio.

COMB FOUNDATION MACHINES

\$10.00 TO \$40.00.

SAMPLES OF FOUNDATION FREE, OR WITH
OUR ONE-POUND SECTION BOX BY
MAIL FOR FIVE CENTS.

For illustration see our Illustrated Catalogue of Apian Implements and Supplies, mailed on application.

A. I. ROOT, Medina, O.

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Wanted, Orders for Fdn.

At 45 cts. for heavy, 55 cts. for light. Wax worked. Tin Points, \$1.00 per 5000. Basswood-Trees, 1 to 3 ft. high, \$1.50 per 100; 5 to 8 ft., \$4.00. Basswood seed, \$1.00 per 1000, postpaid; also Wire Nails, Smokers, and Extractors. Send for Circular. 10% discount on all cash orders received before April 1st.

CHAS. STEWART,
67d Sammons ville, Fulton Co., N. Y.

ITALIAN AND SYRIAN QUEENS,

Before June 15, tested, \$3.00 each; untested, \$1.00 each. Later tested, \$2.00 each; untested, single queen, \$1.00; six for \$5.00; twelve or more, 75 cts. each. Untested queens warranted purely mated.

I. R. GOOD, Nappanee, Elkhart Co., Ind.

BEES IN IOWA. — SEE FOSTER'S — ADVERTISEMENT.

JUST OUT.

New Book

—BY—

JAMES HEDDON,
DOWAGIAC, MICH.

Send your address for his

PROSPECTUS

—AND—

1886 CIRCULAR.

	March	April	June
ITALIAN QUEENS,		May	July
Untested queens, - - - -	\$1.50	\$1.25	\$1.00
Tested queens, - - - -	3.00	2.50	2.00
Two-frame nuclei, no queen, 4.00	3.00	2.50	
3-6db Dozen rates on application.			
ANNA M. BROOKS, SORENTINO, ORANGE CO., FLORIDA.			

RUBBER FOR MENDING RUBBER BOOTS, RUBBER SHOES, and all kinds of CEMENT, rubber goods. An article worth its weight in gold, for the saving of health, annoyance, and trouble. Printed directions for use accompany each bottle. Ten cents per bottle; ten bottles, 85c; 100, \$8.00. A. J. ROOT, MEDINA, OHIO.

BURPEE'S

SEEDS,

Bulbs, Plants, Thoroughbred Stock and Fancy Poultry. It is the only complete catalogue of the kind published, and describes **RARE NOVELTIES IN VEGETABLES and FLOWERS**, of real value, which can not be obtained elsewhere. Send address on a postal to

W. ATLEE BURPEE & CO., PHILADELPHIA, PA.

FARM ANNUAL FOR 1886

Will be sent **FREE** to all who write for it. It is a **Handsome Book of 128 Pages**, with hundreds of new illustrations, two **Colored Plates**, and tells all about the **Best Garden, Farm and Flower** Ties in **VEGETABLES and FLOWERS**, of real value, which can not be obtained elsewhere. Send address on a postal to

PURE * ITALIANS * EXCLUSIVELY.

— STOP, * READ, * AND * ORDER. —

Having determined to devote my time and attention exclusively to the production of pure Italian bees and queens, during the season of 1886, I offer, in order to reduce stock, **50 Choice Colonies of Pure Italians** in 10 Langstroth frames, guaranteed to contain at least 4 full frames of brood and 4 lbs. of bees in new chaff hive, at \$10.00 each. I append my prices for the season.

My terms are cash with the order. First orders will be filled first. I will refund money at any time a customer may become dissatisfied with waiting.

My methods: One kind, and the best of that kind. Nothing except tested queens sold at any price. I will send one-year-old queens until stock is exhausted, and then this season's hatch. I will commence to send, about May 1st.

1 tested queen.....	\$1 00
1 pound of bees.....	1 00
1 frame of brood and bees.....	1 00

1-frame nucleus, tested queen ...	\$2 00
2 " " " " " "	3 00
3 " " " " " "	4 00
4 " " " " " "	5 00

In lots of 5, five per cent discount; in lots of 10, ten per cent discount. In lots of 10 or more nuclei or pounds of bees, I will pay express charges for the first 1000 miles. Now remember, I guarantee safe arrival and absolute satisfaction in all cases. Sample of live workers free by mail. Capacity, 25 queens per day after May 1st.

I append a few from hundreds of recommendations from last season's customers.

Sodus Point, N. Y.
I am very much pleased with the tested queen I got from you last summer.
JAY S. SEELEY.

Port Dover, Ontario, Can.

I believe I can make arrangements with you for queens next spring, as what I have got from you please me very well.
R. M. TAYLOR.

LATER.—I will give you my trade for queens for 1886.
R. M. T.

Mill Point, N. Y.
Queen arrived in fine condition, and I am well pleased with both queen and bees.
PETER KLINE.

Penetanguishan, Ontario, Canada.

Queen received all right, and alive. She is a noble-looking queen, and pleases me better than any I have yet received.
H. T. LEACH.

THOMAS HORN,

BOX 691, SHERBURNE, CHENANGO CO., N. Y.

100 COLONIES OF ORANGE-COLORED ITALIANS

—AND—

WHITE-BANDED ALBINO BEES FOR SALE.

THOSE IN WANT OF BEES, QUEENS, OR APARIAN SUPPLIES WILL DO WELL TO SEND FOR MY 26TH ANNUAL PRICE LIST BEFORE PURCHASING. ADDRESS

WM. W. CARY,

Successor to WM. W. CARY & SON,

4tfdb

Coleraine, Mass.

N. B.—The best testimonial I can give is, that my trade has more than doubled in the past three years.

STRAWBERRY PLANTS.

I will sell, from now until May 1st, in lots not less than 3000, packed and delivered at express office.

Pure Crescent \$2.00 per 1000

" Sucker State 3.00 "

4-5-6d C. F. TYSON, Centralia, Marion Co., Ill.

DUNHAM AND VANDERVORT FOUNDATION

We have a large stock of choice yellow beeswax, and can furnish Dunham comb fdn. for brood comb, cut to any size, for 42c per lb. Extra thin Vandervort foundation, 48c per lb. We guarantee our fdn. to be made from pure beeswax, and not to sag. Will work up wax for 10c per lb., and 20c per lb. for section.

F. W. HOLMES,

Coopersville, Ottawa Co., Mich.

PURE ITALIAN BEES.

Full colonies, nuclei, bees by the pound, and Queens a specialty. Also, Simplicity Hives, Frames, Sections, Comb Foundation, and supplies generally. Send for my circular and price list. You will save money by so doing.

C. M. DIXON,

4-11-db PARRISH, FRANKLIN Co., ILL.

ALL PROGRESSIVE BEE-KEEPERS

Suffer for my price list of Bee-keeper's Supplies of all kinds. Send for price list and be convinced.

J. W. BITTENBENDER,

4-9db KNOXVILLE, MARION Co., IOWA.

FOR SALE.—20 Colonies Italian Bees on 7 L. frames, in shipping-box, \$7.00 each. Eggs from pure-bred S. C. Brown Leghorn fowls (Bonny's strain), \$1.00 for 15. 567d T. O. KEATOR, Accord, N. Y.

GOOD NEWS FOR DIXIE! SIMPLICITY HIVES,

Sections, Extractors, Smokers, Separators, &c., of Root's Manufacture, Shipped from here at ROOT'S PRICES.

Also S. hives of Southern yellow pine, and Bee-keepers' Supplies in general. Price List Free.

J. M. JENKINS, WETUMPKA, ALABAMA.

3-24db

BEE-KEEPERS' GUIDE, Memoranda, and Illustrated catalogue, 48 pages; FREE to all bee-keepers sending address to

3tfdb JOS. NYSEWANDER, Des Moines, Iowa.

50 COLONIES BEES FOR SALE.

I have 50 stands of bees for sale, hybrids and blacks, and in the Mitchell hive, 15 frames in hive, well painted, and metal rabbits. I live on the Arkansas Midland R. R., and can ship by R. R. or water via Helena. I will take \$4.50 per stand, delivered on board train, and delivered by latter part of March.

PETER METZ,

3-8db Poplar Grove, Phillips Co., Ark.

Look! Honey-Comb Foundation! Look!

FRIENDS, if you want any Foundation it will pay you to purchase of us, as we have the very latest improved mills; heavy, 43 cts. per pound; very thin, for comb honey, 10 cts. more per pound; 10% discount on all orders received before April 1st. Send for free samples. Address

C. W. PHELPS & CO.,

4-5d TIOGA CENTRE, TIOGA Co., N. Y.

ITALIAN BEES AND QUEENS,

Full Colonies, NUCLEI, AND QUEENS, CHEAP.

Send for Circular.

C. C. VAUGHN, 4tfdb COLUMBIA, TENN.

DADANT'S FOUNDATION FACTORY. WHOLESALE and RETAIL.
See advertisement in another column. 3btfdb

GREAT REDUCTION. Good as! OUR ONE-PIECE THE BEST!

V-GROOVE * SECTIONS,

SMOOTH ON BOTH SIDES, AT \$3.50 PER 1000.

FOR LARGER LOTS, WRITE FOR PRICES.

A. M. MURRAY & CO.,

4-5-6d Coshen, Elkhart Co., Ind.

LOOK HERE.

New Factory, new Machinery. Having owned and handled bees for twenty-two years, I now offer

APIARIAN SUPPLIES

Of my own manufacture. Our specialty will be on one-piece V-groove buckeye sections. You can not guess how white and beautiful they are. We make hives to order, of all sizes and patterns, though the hive we use is the Scientific hive, made in sections six inches high, put together without nails. Also Frames and Sections. We claim that we can get more section-box honey from this hive than any hive we know of. For circular, address

5-6d **J. B. MURRAY, Ada, O.**

J. W. K. SHAW & CO.,

Specialists in Italian-Queen Rearing

We are prepared to fill orders for early Queens, tested or untested. A large number are ready for mailing. We hope to supply all demands made in the early spring, and all after, by return mail. Price \$1.00; doz., \$10.00. Tested, \$2.00. Special rates to dealers. **Loreauville, Iberia Parish, La.**

5-6d

VANDERVORT COMB FOUNDATION MILLS.

Send for samples and reduced price list.

2tfdb JNO. VANDERVORT, Laceyville, Pa.

Mirror, or Partiscale Carp For Sale.

Spawners, 10 to 12 inches in length, per doz., \$6.00
8 to 10 " " " " 5.00
Small fish, 2 to 4 " " " " 100, 5.00

W. H. CARPENTER,

3-6db Springboro, Warren Co., Ohio.

Eggs, \$1.25 FEB 13, from pure-bred, single-comb Brown Leghorns. Unexcelled layers.
Address H. B. GEER, Nashville, Tenn., or E. W. GEER, St. Mary's, Mo. 3-8db

QUEENS. 1886. QUEENS.

Rearred from Imported Mothers. Two, three, and four frame nuclei. Safe arrival and satisfaction guaranteed. Send for price list. Address

5-11db **FRANK A. EATON, BLUFFTON, OHIO.**

HONEY AND BEESWAX.

Our market, and location as a trade center, the rapid growth of our city and country, gives us a large demand for honey. We have found it impossible to keep a stock of 1-lb. frames, unglassed, and of which we are in need. This style of comb sells much faster than any other and we will make liberal offers on receipt of samples. We are well stocked on 2-lb. sections, also extracted. Beeswax wanted on commission.

CLEMONS, CLOON & CO.,
KANSAS CITY, MO.

BEE-HIVES, SECTIONS, COMB FOUNDATION, AT GREAT REDUCTION.

DEALERS AND LARGE CONSUMERS WILL
FIND IT TO THEIR INTEREST TO WRITE
FOR PRICES FOR 1886.

JOHN J. HURLBERT,
LYNDON, WHITESIDE CO., ILLINOIS.
2tf

BE SURE

To send a postal card for our illustrated catalogue of
APIARIAN Before purchasing **SUPPLIES**
tains illustrations and descriptions of every thing
new and desirable in an apiary,

AT THE LOWEST PRICES.

ITALIAN QUEENS AND BEES.

J. C. SAYLES,
2 tfd **Hartford, Washington Co., Wis.**

FOR SALE. BIRD and WATER DOGS
ADDRESS **EUGENE HOYT,**
6-7 tfd **Highland, Madison Co., Illinois.**

BEES IN IOWA. —SEE FOSTER'S— ADVERTISEMENT.

SUMNER & PRIME,
BRISTOL, * VERMONT.
—MANUFACTURERS OF—

Bee - Keepers' Supplies.

White Poplar Dovetailed Sections and Shipping
Crates a Specialty. Price List and samples free.
1-2 tfd

Bee-Hives, Honey-Boxes, Sections.

LARGEST BEE-HIVE FACTORY IN THE WORLD.

CAPACITY, 1 CARLOAD OF GOODS PER DAY

Best of goods at lowest prices. Write for Price
List. 1 tfd. **G. B. LEWIS & CO.,**
Watertown, Wis.

MUTH'S
HONEY-EXTRACTOR,
SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to **CHAS. F. MUTH & SON,**

CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to
Bee-Keepers." 1 tfd

THE Apicultural Establishment

OF

F. J. DOKOUPIL,

In Vigaun, Upper Carniola,
Austria, Europe,

Send **QUEENS** postpaid. Safe arrival and purity of
breed guaranteed.

Price each in German Reichsmark.

	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.
Carniolan Queens, Native,	8	7	6	5	5	4	4
Italian Queens, Native,	9	9	8	7	7	6	6
Cyprian or Syrian Queens, Native,	20	20	20	20	18	18	18
Cyprian or Syrian Queens, bred in Carniola, 579db	12	12	11	11	10	10	10

SECTIONS,

To nail, or: dovetailed, per 1000, \$4.50. Send 2-cent
stamp for sample and price list. 4 tfd
PARKER NEWTON, Earlville, Madison Co., N. Y.

TESTED QUEENS, \$2.00; untested, \$1.00. Wax-extract-
or, \$3.00. Other supplies. Send for circular.
OSCAR F. BLEDSOE, Grenada, Miss. 4 tfd

BEES and PLANTS.

20 stands of Italians at \$5.00; and 20 stands of
hybrids at \$4.00 per stand, all in Simplicity hives of
Root's pattern. Also pure Gregg, Cuthbert, and
Turner raspberry-plants for sale at \$1.00 per 100, or
\$8.00 per 100. Address
567d **A. F. ROBINSON, Marysville, O.**

DADANT'S FOUNDATION FACTORY, Whole-
sale and retail. See advertisement in another
column. 3 tfd

Here * We * Are * Again * FOR 1886. *

Bound to sell cheaper than the cheapest. Bees,
Comb Foundation, Hives, Sections, and Apiarian
Supplies in general. Don't fail to send for our Cir-
cular, right off. **G. W. ALBRECHT,**
5-c-7d **DUNDAS, WISCONSIN.**

SIMPLICITY & LANGSTROTH HIVES

All dovetailed Sections, Frames, Crates, Wire Nails,
etc. Send for circular. **GEO. WHEELER,**
5 tfd **Norwich, Chenango Co., N. Y.**

SECTIONS

Dovetailed, or to nail; planed, or smooth sawed.
Any size made to order. Sure to please you, and
sold at the lowest price for good sections. Send
stamps for samples and prices, stating size and
quantity wanted. Any size of frame made to
order, and shipping-crates in season. 5-6-7d
F. GRANGER & SON, HARFORD MILLS, CORTLAND CO., N. Y.

100 Colonies of Bees for Sale!

My 650 colonies of bees are more than I can well
handle, and I will sell 100 full colonies at \$5.00 each
for hybrids, \$6.00 for pure Italians. Discount on
larger numbers. I will also sell a few colonies of
Caucasian bees, which breed I imported from the
Caucasus Mountains, Asia, in 1880, and have found
them of great value to me. Address

JULIUS HOFFMANN,

Canajoharie, Mont. Co., N. Y.,
(Formerly Ft. Plain, N. Y.)

HONEY COLUMN.

CITY MARKETS.

CINCINNATI.—*Honey.*—No new feature in the market. Demand is good for jar goods in the jobbing way, and fair for choice comb honey, but very dull for barrel goods from manufacturers. Arrivals are plentiful. We quote extracted honey, 4@8c a lb. on arrival, and choice comb honey at 12@15c a lb. in the jobbing way. There is a good home demand for *beeswax*, which finds a ready sale at 25c a lb. on arrival.

CHAS. F. MUTH & SON,

S. E. Cor. Freeman and Central Avenues,
Mar. 10, 1886. Cincinnati, Ohio.

St. Louis.—*Honey.*—The market is dull.

White clover in 1-lb. sections,

14@16c.

Spanish needle, "

11@12½c.

Prime,

9@10c.

Dark, and broken comb,

7@8c.

Extracted, choice, in cans

8@9c.

" good "

7@7½c.

" in kegs

5@7c.

" bbls., as to quality,

4@6c.

Beeswax, in fair demand at 22½@23 for prime. Dark,

1@5c less as to quality.

Mar. 11, 1886.

W. T. ANDERSON & Co.,

104 N. 3d Street, St. Louis, Mo.

CLEVELAND.—*Honey.*—The market continues very

good for best 1-lb. sections of white at 14 cts.; second,

12@13; 2-lb. sections are dull at 12@13. Old, 9@10,

and moving very slowly. Extracted, 7@8.

Beeswax, 25.

A. C. KENDEL,

Mar. 10, 1886.

115 Ontario St., Cleveland, Ohio.

BOSTON.—*Honey.*—1-lb. sections, 13@14; 2 lbs.,

11@12; Slow sale. Extracted honey, 6@8. *Beeswax*,

28.

BLAKE & RIPLEY,

Mar. 12, 1889.

57 Chatham St., Boston, Mass.

CHICAGO.—*Honey.*—Market is in good shape here

at present, and all that is here will be closed out

soon. Choice comb honey brings 16c in 1-lb. frames;

extracted, dull, but really without much change in

price. *Beeswax*, 25c. Comb honey wanted.

R. A. BURNETT,

Mar. 10, 1886.

161 S. Water St., Chicago, Ill.

DETROIT.—*Honey.*—The market continues dull;

no market change from last quotations. White, in

pound sections, 13@14c. Commission houses think

they will be able to close out present stock before

new honey comes in. *Beeswax* in good demand at

25@27c.

M. H. HUNT,

Mar. 11, 1886.

Bell Branch, Mich.

MILWAUKEE.—*Honey.*—This market is good for

choice comb and extracted honey at this time, and

the supply is not equal to the demand. We can en-

courage shipments, and quote as follows:

Very choice clover, 1-lb. sections,

17@18

Choice "

16@17

" " 1½ " "

15@16

Old or dark, slow sale.

12@14

Extracted, choice, pure, in kegs or bbls.,

7½@9

Beeswax wanted, 20@25c per lb. A. V. BISHOP,

Mar. 10, 1886.

142 W. Water St., Milwaukee, Wis.

STAMP TAKEN. Address A. T. COOK, Seedsman,

Clinton Hollow, Dutchess Co., N. Y.

[Mention this paper.]

67d

SECTIONS.

THE CHEAPEST YET.

One-Piece Grooved Sections, \$3.00 per 1000.

Ten Thousand or more, \$2.50 per 1000.

Address

678d

CHAS. S. BEEBE,

Baltimore, Md.

200 COLONIES OF ITALIAN & HYBRID BEES FOR SALE.

Having more Bees than I desire to keep at present, I offer a portion of them for sale. I have always made a specialty of producing fine comb honey, and my bees have made a good record. Average in 1885, over 100 lbs. per colony, spring count, nearly all comb. For price, state number of stocks wanted, and address

6d

W. D. WRIGHT,

Knowersville, Albany Co., N. Y.

1886 NORTHSHADE APIARY, 1886

PRICES GREATLY REDUCED.

Full colonies of Italian bees for spring delivery.

Nuclei, queens, and bees by the pound for the

season. Comb foundation for sale. Wax worked

by the pound or for a share. Fdn. samples free.

Price list ready.

O. H. TOWNSEND,

6tfd

Alamo, Kal. Co., Mich.

Clark's Bee-Keeper's Diary.

A convenient register, with printed headings for

sixty colonies, giving a record of swarms, surplus

honey, and queens. Price only three cents.

SUPPLIES.

Industrial S. & W. Hives, Carniolan and Italian

queens, etc. Price list free. J. W. CLARK,

67d Box 34, Clarksburg, Moniteau Co., Mo.

C. W. Phelps & Co's Foundation Factory.

SEE ADVERTISEMENT IN ANOTHER COLUMN.

SILK, FRUIT, AND SHADE.

Two-year-old white mulberry-trees for sale, \$1.00

per doz. 6d J. L. STAHL, Webster Grove, St. Louis Co., Mo.

WANTED, TO WORK BY THE MONTH

on liberal terms. Nine years' ex-

perience. Address A. L. MILLER, WEST TOLEDO, O.

HORN PAYS EXPRESS CHARGES

SEE ADVERTISEMENT.

BEES, \$1.00 per pound, in April and May.

Queens, 25 cts. to \$2.25.

6d MISS A. M. TAYLOR, MULBERRY GROVE, BOND CO., ILL.

SAVE FREIGHT & MONEY by ordering

your Apian supplies from L. J. TRIPP,

6d Circular Free. KALAMAZOO, MICH.

FOUR-PIECE ONE-POUND

DOVETAILED SECTIONS,

\$2.25 Per 1000. Sample Free.

6d

M. A. LOHR, VERMONTVILLE, EATON CO., MICH.

FOR SALE, ITALIAN AND CYPRIAN BEES

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MARCH 15, 1886.

No. .6

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SECTIONAL BROOD-CHAMBERS.

Also Some Other Matters Pertaining Thereto.

SOME SUGGESTIONS AND DEDUCTIONS FROM DR. G. L. TINKER.

THE extensive discussions of the past year in the bee-journals on the modes and advantages of reversing brood-combs, as well as the result of trials, has proved that there is no profit in reversing combs singly, because of the labor required, not that there is no advantage to be gained from the practice. Like many other discussions in our journals, truth that we had sought—the germ of wheat sifted from all the chaff—is quite unlike what we had been seeking or had anticipated.

It is no new idea, by any means, that the getting of the brood close up to the sections in working for comb honey is a measure of great value. As the outcome of all the invention and discussion, we have discovered, perhaps, all of the plans by which the brood can be brought near the sections, so that we may now point out the one plan most practicable and valuable. And right here I wish to say that no one man is entitled to all the credit of the discoveries made, because all, or nearly all, bee-keepers have had a part in making them, and have prepared the fraternity for an innovation in our methods that, without this preparation of the apicultural mind, would have been impossible. The credit, I boldly assert, is due rather to the great fraternity of bee-keepers who have not only made discovery possible through their united labors, but now make the introduction of the new appliances and meth-

od certain. As one who has done most to favor invention and the evolution of new ideas on this subject, the editor of GLEANINGS should take a just pride in the work accomplished; but as the matter stands, one bee-keeper is as much entitled to the benefits of the work as another; and I trust and believe that all will look upon it in this light, and hesitate not by virtue of a just right to adopt the improved methods as soon as convenience will warrant, and the revolution in the construction of brood-chambers and in our methods of management will demand. But I am strongly convinced that nothing has yet been produced that will enable, to the fullest extent, the practical advantages that are to be derived from our new discoveries. It is my object, however, in writing this article, to throw some light on the subject.

But first, what is the most practical and advantageous method of disposing the brood near the sections at will? Beyond question, it is the proper management of the shallow sectional brood-chamber. Has it any disadvantages? We assert fearlessly that it has not, neither in wintering the laying of the queen, nor in the manipulation of hives or combs.

Until about five years ago, a hive, the brood-chamber of which was in three shallow sections, each 5¼ inches deep by 12 x 16 inside, has stood in this town, and contained bees uninterruptedly for 30 years. The colony, in its thin walls of walnut, had resisted the cold and the buffeting of the storms of 30 winters, and it at last succumbed to the depredation of robber-bees which gained entrance through its many rotten corners. It had always done well, was gen-

erally on hand with a rousing swarm in season, and, besides, made a liberal amount of surplus each year for its owner. When father Langstroth, a few years since, recommended a thin-walled hive for outdoor wintering I was quickly reminded of the old hive (the panels in the sides of the cases were not over $\frac{1}{4}$ inch thick). That it had not been manipulated on the modern plan of tiering up the cases and placing the brood next to the supers, was no fault of the hive. The combs were all attached to comb-bars in each case, on the Dzierzon plan.

REVERSING HIVES.

In a shallow sectional brood-chamber we think that there is no advantage whatever to be derived from reversing its sectional parts. The placing of the brood next to the super, and any honey that may be in the upper case below the brood, will accomplish all that can be done. We shall, therefore, have no use for a reversible hive. Again, as we shall not have occasion to handle the frames very much, but instead the sectional cases, it will not be greatly to our advantage to have the frames as readily movable as are the L. frames. On this account a very simple case is all that is necessary to hold the frames—a case without ornamentation, clamps, screws, or any thing of the kind. Neither do we want a complicated bottom-board; but all the parts of a practical hive of this nature should be, *and will be*, made of only a few pieces, and all very plain, and easy of construction.

The frames can be supported in the sectional case on strips of sheet iron cut 5-16 wide, and as long as the case is wide inside, the strips to be inserted in thin saw-cuts made 5-6 of an inch from the inside lower edges of the ends, and to enter the wood only 3-16 of an inch. This construction will give a proper bee-space under the frames, which should extend to the top of the case. The width of the end-pieces of the frames should be $1\frac{1}{2}$ in., and the thickness $\frac{1}{4}$ in., making a closed-end frame to rest on the sheet-iron strips. The width of the top and bottom bars should be the same, and may be $\frac{3}{4} \times \frac{1}{4}$ inch in thickness.

Here let me call the attention of bee-keepers to the comparative cheapness of these frames, if dovetailed at the corners, to those in common use. They need no nails, and a set of 14 for one hive can be put together in a few minutes; and as they can easily be made very accurately, they will always fit nicely in the cases. The length of the frame might well correspond with the $4\frac{1}{4} \times 4\frac{1}{4}$ sections now so popular. The outside would therefore be 17 inches long, and, if made just 5 inches deep, it will take one-half of a sheet of foundation, cut the regular size for L. frames. The frames can be taken out of the cases very readily, since, being very shallow, the cases can be set on end, and the frames pushed through, one or more at a time. Hence the worthlessness of all clamps to hold the frames in place will be apparent.

Again, if we are to handle hives rather than frames we can see no advantage in having so many frames in each case. I think we shall find seven enough, though many may prefer eight or even nine frames to the case. It will then be very light; but to further lighten it we would make the sides only $\frac{3}{4}$ inch thick, and the ends $\frac{1}{2}$ inch, and make the usual hand-holes in the ends, or nail cleats across the ends a little above the middle line to handle them by.

The bottom-board, we would make out of half-inch stuff, with a cleat across each end, of one-inch stuff, the rear piece to be two inches wide and the

front five inches. The board is to be cut $1\frac{1}{2}$ inches shorter than the hive is long, and the wide cleat nailed across two inches from the end. This would give an entrance across the front of $\frac{1}{2}$ inch. If blocks are nailed on each side, to go under the front corners of the hive, ordinary entrance-blocks can then be used.

Sectional hives, containing only seven or eight frames in each section, will be so light that we shall find it an easy task to carry them back and forth from cellars in wintering, where they can be placed under our full control, and wintered in a scientific manner, which we shall never be able to do in outdoor wintering, where we can not regulate the temperature at will. Only one of the sectional cases, well filled, will be necessary for each colony for the winter.

To operate a sectional hive of shallow frames successfully we shall need a honey-board with strips of perforated zinc set in thin saw-cuts, made in the edges of the slats compassing the board. This construction and use of perforated zinc is my invention, but it is free to all to use. As any kind of a section case or super can be adjusted to this hive, every bee-keeper will be expected to use his favorite.

The capacity of two of the sectional brood-chambers will about equal the eight-frame L. hive, but many would prefer to use three of the parts in building up for the honey-harvest. The frames alone are made to reverse, but we shall need to reverse them but once, and that simply to get the frames filled out with comb plump to the sides all around. Ordinary six-inch boards can be split and dressed to three-eighths for sides of the cases, and we shall have no trouble to get whole boards wide enough for the bottom and covers, and yet there will be ample room for top storing on the hive. For a *very cheap hive* we shall never get a cheaper; and a better hive for *large results* may not be possible.

It will hardly be necessary to add, in conclusion, that this hive is not patented or patentable, except in one or two features, which are my inventions, and are hereby freely given to the public.

Since we received the above, the following, also, came to hand from Dr. Tinker:

I have sent you a brood-chamber by express. It weighs complete, two tiers of frames, only $6\frac{1}{2}$ lbs., and the complete hive will weigh about 15 lbs., and I think it is heavy enough.

As I wrote to you, I shall make a specialty of sections, and do not care so much about hive-making. You can therefore do what you like with it. For myself, I am now more favorably impressed with the hive since making a few of them than before I wrote the article. I further believe that the frames will prove to be more readily movable than I had anticipated. The hive is exactly right width for a section $1\frac{1}{2}$ wide, with or without separators, but I shall use upon it a section $1\frac{1}{4}$ inches wide.

The secret of working sections without separators is a *narrow case*. You will now see why I prefer only 7 frames wide in the hive. I believe that these little narrow hives and cases possess more merit than will be readily granted, and that they have a future.

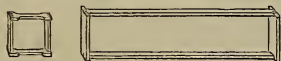
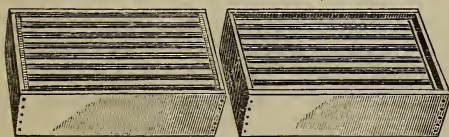
Where the sections are massed together in a narrow case (which is alone practicable without separators) of 4 or 5 sections wide, the side passages have the same advantages, of course, that exist where separators are used.

If, however, we are to *invert* the sections, then a wide frame, constructed exactly like the brood-frames, but a little wider, and to be held in the super in the same manner, seems indispensable. For I believe that, under many circumstances at least, it is impracticable to invert whole cases of sections at a time when any advantage is to be gained from the practice; but if the sections are in wide frames we can usually invert them, one or more at a time, as may be safe to do, the danger being that the combs will lop over sidewise, as they are exceedingly tender before they are capped over. My opinion is, that it will never pay to invert sections. If a case is made to hold wide frames, it will require to be just $\frac{1}{2}$ inch longer than the case described, and the cases to hold the brood-frames, as well as the frames, will require to be $\frac{1}{2}$ inch longer.

G. L. TINKER.

New Philadelphia, O., Feb. 20, 1886.

The shallow brood-chambers sent us by Dr. Tinker are of such extremely nice workmanship, we have taken pains to have cuts of them made. By the way, the doctor's letter is a consideration of the principle suggested by friend Heddon, though he doesn't say so. You will notice he suggests making the hives still narrower than eight frames; in fact, so narrow as to contain only seven.



A HIVE COMPOSED OF NARROW, SHALLOW BROOD-CHAMBERS.

The brood-chambers shown above are $10\frac{1}{2}$ inches wide, outside measure. As the boards comprising the sides are $\frac{3}{8}$ inch thick, these chambers are $9\frac{1}{4}$ inside measure. The frames are about $1\frac{1}{8}$ from center to center, therefore seven fill the chamber. The end-pieces are $\frac{3}{8}$ inch thick. The frame shown is composed of strips $\frac{1}{4} \times \frac{3}{4}$. The end-pieces are $\frac{1}{4} \times 1\frac{1}{8}$. The doctor thinks they do not need nailing. We would nail them both ways with slender nails, securely, in order that they may never pull to pieces, for we may have considerable trouble when the time comes to take these little frames out, if such time ever does come, after they once are nicely filled with combs. In the figure on the left, the frames are shown flush with the top of the hive. The figure on the right shows the same inverted, where the frames are $\frac{1}{4}$ inch below what is now the top edge of the hive. They are held by a little strip of iron driven into a saw-cut in the usual way. Whether or not these arrangements are ever going to be used in place of movable frames, is the question. I suppose there is no further necessity of debating whether any one has a right to use this arrangement, after reading the letter on page 211. And while we are about it, perhaps it may be as well to say there seems to be no use in discussing the matter any further.

REPLY TO G. M. DOOLITTLE.

SEPARATORS, AND WIDE FRAMES TO HOLD SECTIONS.

I HAVE read Mr. Doolittle's quotations on page 171. My correspondence is so great that I must be excused from replying, sentence by sentence. Mr. Doolittle's quotations are all confined to 1881, except the last two, to 1886. He will find just the reasons he asks for, in my writings, between those dates. I have before explained fully how I made my mistake in my first experiments with separators.

Many of Mr. Doolittle's questions are answered in my chapters on hives, and again by him in the fifth paragraph in his article in *A. B. J.* for March 10, 1886. He says in one place I lay the blame to glue; and in another, to two-story wide frames, and wishes to know which is correct. I answer, both; two-story wide frames are glued much worse than those one story deep, especially when tightly pressed with our thumb-screws, as we describe in our book. But for my desire to reverse my sections, I now think I wouldn't use wired frames, whether I used separators or not.

We overcame the propolis question by using shallow wide frames tightly pressed with thumb-screws. I made some mistakes regarding separators in 1881, and the same diligence with which Bro. D. has found them will aid him in finding my admissions and corrections, made long before I wrote the book, "Success in Bee Culture."

Friend Root wrote as though in my book was the first place I had spoken in favor of wide frames and separators. Friend Hutchinson corrected him.

Dowagiac, Mich.

JAMES HEDDON.

OUR OWN APIARY.

Boiling-Point of 212° Reached with the Solar Wax-Extractor: Experiments with.

WHY THE BEE HATCHES WITH HIS HEAD TOWARD THE CAPPING.

ON page 226 of this present number I am asked whether the bee larva absorbs its food, or whether it receives it by means of a mouth; also why the bee does not starve when it hatches with its head toward the capping; i. e., turned from the base of the cell where the food is supposed to be. In answer to the first question, I will say that a few of the lowest forms of animal life receive their nutriment by absorption, and are generally parasitic. The larva of the bee, though by no means as perfect as the mature bee, yet is possessed of a mouth, rudimentary digestive organs, and a means of respiration. If you take notice you will observe that the young larva will consume a large quantity of food; and were it not for the frequent visitations of the nurse-bees the tiny grub would soon starve. Generally, as we know by sending larvæ by mail, the quantity of bee-jell will not last the grub much more than 24 hours, if taken from the hive. The larvæ of insects in general are voracious eaters, and the amount of food that they will consume in proportion to their size, as compared with an ox, is enormous. The larva of the bee is no exception to the rule. Indeed, it is quite necessary that the grub should gorge itself during the larval period; for, as we shall presently see, it will need the nutriment derived therefrom for a period of rest.

Now we come to the consideration of the second question; namely, Why does the bee hatch with its head toward the capping, and how does it obtain food, if any, when in the pupa state? From observation and facts which I have been enabled to glean, I am led to believe that the bee, during its pupa state of development, like other insects of its kind, remains in a quiescent condition, during which it takes no food. Indeed, confined within the narrow limits where nature has placed it, without any surplus room in which to reverse its position, how could it turn its head in the direction of the food? We know that the bee hatches with its head toward the capping, and in this position remains upward of 12 to 14 days. During this time we will suppose that the grub as described on page 848, last year, has just relined his cell, covering up all remnants of food, together with all refuse matter, and that his compartment is nice and clean. In the process of development the unsightly grub is distinctly divided into three separate hardened segments at the same time that legs and other organs begin to appear. If in a day or so before the time of hatching we should break open the cell, we should find an ivory-colored bee, and we might or might not detect signs of life; at any rate, we should find it in a state of comparative quiescence. The exterior covering of the bee has become hardened and shell-like, which would make it quite impossible to get any food at the base of the cell, even if there were any there. The bee has his head toward the capping, because, like the chicken in the shell, he is the proper one to decide when he is mature enough to hatch; but were his head toward the base of the cell it would be quite impossible to liberate himself. The caterpillars and silkworms, besides the larvæ of other insects as well, become quiescent when in the pupa state, as we learn from good authority on the subject; and bees would be no exception to the rule. So if we examine all these peculiar phenomena we shall find a cause, and generally analogous instances in other insects.

EXPERIMENTS AGAIN WITH GREEN'S SOLAR WAX-EXTRACTOR, IN WHICH THE BOILING-POINT, 212°. IS REACHED.

March 15.—To-day begin rather warmer than usual, I decided to experiment further with the solar wax-extractor—the outside temperature in the shade being 65°. The extractor was arranged in a suitable position; and, after a lapse of an hour or so, I looked in. The mercury was above 180°; yes, the temperature was actually 213°, or a trifle above the boiling-point. I think we shall have to admit that eggs boiled by the sun's rays is a thing quite probable—indeed possible. If the weather is favorable, and I don't have "bad luck," I will report in regard to sun-boiled eggs versus those boiled by the other method. But, wait one moment; a difficulty confronts us at the outset. The water in the extractor will have to be heated from its surface; whereas, water in a kettle, by the ordinary means, is heated from its base by convection; i. e., the atoms are transmitted from one part of the water to another. It is laid down in physics, that water reaches its maximum density at about 39°; when the water is warmed above this point it is expanded, and, in consequence, is lighter. In the wax-extractor, the water will of necessity be heated at its surface by the action of the sun's rays. As this stratum of water is lighter, theory says it will stay on top, and not mingle with the

water below and it thus will be heated very slowly. When we go in bathing, after wading out to our necks we often find a cold stratum at our feet, when the water within a foot or two of its surface is warm, having been made so by the action of the sun. This water, as it is less dense, is lighter, and does not sink. In regard to sun-boiled eggs, we will see what practice has to say later.

OUR OWN APIARY.

Our bees are still in splendid condition—only three lost from the whole; but we had reason to suspect these would not winter, one being the Holy-Land colony that I have already referred to, and the other two when put up for winter were queenless. We are thus much better off than we were a year ago at this time, when we had a loss of six instead of three as now.

ERNEST R. ROOT.

CIRCULARS RECEIVED.

C. M. Dixon, Parrish, Ill., send a 4-page list of supplies in general.
C. Eckesser, Marshallville, O., send a four-page sheet—bees and strawberry plants.
J. P. Moore, Morgan, Ky., send a 4-page list of bees and queens.
Rev. William Ballantine, Mansfield, Ohio, sends us a 16-page price list of bee supplies in general.
Simon P. Roddy, Mechanicsstown, Md., sends us an advertising sheet of bees and queens, a specialty.
Ernest S. Hildeman, Ashippun, Dodge Co., Wis., send an advertising sheet of farm produce and bee supplies.
W. W. Bliss, Duarte Cal., send a 12-page circular of apian supplies; specialty, foundation.
S. Valentine & Son, Hagerstown, Md., send a 20-page price list of bee supplies.
Frank A. Eaton, Bluffton, Ohio, send us his advertising card and price list of bees and queens.
D. A. Fuller, Cherry Valley, Ill., send his advertising sheet, hives a specialty.
J. W. K. Shaw & Co., Loreauville, La., send their 4-page list; specialty, early Southern queens.
E. Kretzmer, Coburg, Iowa, send a neatly gotten-up price list of 27 pages, hives and Italian bees a specialty.
E. W. Greer, St. Mary's, Mo., send his advertising card—poultry and hives.
A. J. Norris & Co., Cedar Falls, Iowa, send their 4-page sheet; specialty, Italian and Carniolan queens.
E. M. Yeomans, Andover, Ct., send a 4-page circular; queens and nuclei a specialty.
Reynolds Bros., Williamsburg, Ind., send a 16-page circular of bee supplies in general.
R. M. Morrill, Plymouth, Ind., send an 8-page circular; specialty, small fruits.
Sunner and Primc, Bristol, Vt., send a 16-page price list of bee supplies.
H. R. Boardman, East Townsend, Ohio, send an advertising sheet; specialty, choice comb and extracted honey.
Geo. Wheeler, Norwich, New York, send a 10-page list, hives a specialty.
G. P. Piercing, Fisher's, N. Y., send a 4-page sheet; specialty, seed potatoes.
Earl Clickinger, Columbus, O., send an advertising sheet of bee supplies in general.
A. F. Stauffer, Sterling, Ill., send an 8-page circular—bee supplies.
J. W. Clark, Clarksburg, Mo., send a 15-page circular, 8 pages of which is a diary for the registration of swarms and their increase.
O. H. Townsend, Alamo, Ka'mazoo Co., Mich., send advertising sheets of bees and foundation a specialty.
Bostwick & Ashley, Medina, leave with us their "Egg Bulletin" for 1886; specialty, poultry and eggs.
James W. Tefft, Colliamer, N. Y., send a 4-page circular of the "Queen City" bee-hives as a specialty.
Dr. J. P. H. Brown, of Augusta, Ga., send us his 15th annual catalogue, of 20 pages; hives a specialty, such as are adapted to the southern climate.
J. D. Goodrich, East Hardwick, Vt., send us a sample of his white-polar sections, with a two-page circular and samples of comb foundation, very neatly packed inside the section blanks.
Among the circulars and books recently printed at this office we notice the following:
B. J. Miller & Co., Nappanee, Elkhart Co., Ind., a 16-page circular of bee supplies in general.
G. K. Hubbard, Lagrange, Ind., a very pretty 10-cent bee-book. It has 64 pages in all, the first 30 of which are devoted to a considerable amount of valuable information, condensed in a small space. The remaining pages comprise a description and price list of the Hubbard bee-hive. Mr. Hubbard will furnish the book at the price named above.

A BEE-JOURNAL STARTED IN AUSTRALIA.

VOLUME I, No. 1, of the *Australian Bee-Keepers' Journal*, is quite a pretty little magazine, published at Melbourne, Australia, at 6 shillings a year, or 6 pence per copy. The *Journal* is well gotten up, the paper is nice, the printing is nice, and the matter is well selected. We wish them Godspeed.

IMPROVEMENT IN BEE-HIVES AND FIXTURES.

NO NEED OF DEMORALIZING CHANGES; SIMPLICITY HIVES EASILY CONVERTED INTO REVERSIBLE ONES.

FRIEND ROOT, we gather from what has been written on this subject of improvement in hives, that what is most needed to accomplish the improvement are the following new and desirable features: 1. The easy and quick reversal of the brood-combs when necessary; 2. Permitting the use of a practical honey-board between the brood-frames and the surplus; 3. Whenever thought necessary, allowing the easy and rapid reversal of the surplus honey, either when in frames of comb or in sections above; 4. Allowing the use of separators between the sections when using them in the case system, and on the tiering-up plan.

We know that there have been given, from time to time, a great many methods, and recently an invention, whereby these things may be accomplished; but it seems that they all meet with more or less opposition, on the ground of the demoralizing changes they would of necessity bring about if they were generally adopted. After much careful study and thought upon the subject, it seems to us (and we doubt not our bee-keeping friends will generally agree) that if the addition of the above-mentioned valuable features could only be made to our time-honored movable-frame hives in the personality of the L and Simplicity, at the same time retaining all of their best features, which have been found to be so valuable, after long years of service and experience, it would be "a consummation devoutly to be wished;" and although at first thought it seems hardly possible, nevertheless we predict that it will not fail of consummation. And now, friend R., with this end in view, if you will kindly allow us space, we will try to make it plain to yourself, as well as our bee-keeping friends, how it is possible to convert a Simplicity hive (those already in use) into a reversible hive, possessing all the desirable features alluded to above, and at the same time doing it without taking it apart and building it over again, and that, too, at so little trouble and expense it could not possibly be considered demoralizing to think of making the change, taking into consideration the many and great advantages to be gained. This is done in the following manner:

Take a Simplicity-hive body, place it upon a circular-saw table, having set the gauge at $9\frac{1}{2}$ inches; run it through and cut away the bevel portion at the top, all around; this should leave the top of the hive on a level with the tops of the frames. Next nail on a light frame, or collar, made of strips of wood $\frac{1}{2}$ in. square, size $16 \times 20\frac{1}{2}$ outside measure, to take the place of the beveled portion removed. This done, you have a Simplicity that will reverse ten hanging frames (or a less number, even with division-boards) without having any alteration to make in them, by simply turning the hive bottom side up, provided the frames are supported from falling out by means of two strips of wood $\frac{1}{2}$ in. thick, $\frac{3}{4}$ in. wide, and 15 inches long, laid across them near their ends, and made fast to the offset in the sides of the hive, these being, as we mentioned before, on a line with the tops of frames.

The strips used for this purpose are best made of basswood, and according to the following diagram,

only the beveled portion then resting upon the bottom-board, thus furnishing less surface for propolizing. They also would be much better if made of cast metal.

These strips not only hold the frames in their proper places while the hive is being turned over, but,



resting upon the bottom-board, by the weight of the hive they press

the top-bars firmly against the rabbet, thus preventing the bottoms (which are now the tops) from toppling or leaning together. A Simplicity hive thus treated, makes practically the same hive we are now making and using, the past season's experience with which has given us great satisfaction, an illustration of which can be found on page 771 of GLEANINGS for Nov. 15, 1885, to which please refer, as it will greatly assist us in the further explanation.

Now, with our Simplicity bodies made reversible they will manipulate in all ways the same as the Ideal reversible bee-hive there shown, which is only a modification of the Simplicity, and they will now admit the use of a wood-slat honey-board like the one shown in the cut. This honey-board is reversible, is 15 in. wide and 19 in. long, and has 60 openings like those in a section box, only not so wide, being scant 3-16 in.; and when placed in position on the hive it gives two bee-spaces of $\frac{3}{8}$ in., one above and one below. Now, a Hutchinson, or a Heddon honey-board either, could be used, provided it is made wide enough for a ten-frame hive.

Our reversible Simplicity bodies are still interchangeable, and can be tiered one above another, just as they could before; and having a honey-board between, which prevents the upward building of comb from fastening the two sets of frames together, they are much more easily removed when filled. The upper story can also be reversed, the same as the lower, and will reverse metal-cornered Simplicity frames as well as all-wood top-bars, or both kinds together. Half-stories, if they are made alike at top and bottom, to hold the sections and separators in single-tier wide frames, can also be reversed over the brood-chamber, provided the tops of wide frames are made the same width as their bottoms; however, we do not recommend the use of wide frames to hold the sections, either in single or double tier, in order to be able to use separators, for we have a much better way of doing it.

This brings us to consider our reversible cases, to be used over our newly made reversible Simplicity body, to hold the sections and separators (see illustration above referred to); and from practical test we can safely recommend it as being by far the easiest, simplest, and best method, thus retaining all the valuable features of the case system, as taught by friends Heddon and Hutchinson, besides adding to it the use of separators, and permitting the reversal of all the sections at one operation.

The case holds 33 $\frac{1}{2}$ -inch sections, without any separators, or 30 $\frac{1}{2}$ -inch sections with separators between them—not short ones either, but long enough to reach across three section boxes; nor do they have to be nailed to anything as separators are when used in wide frames—a very big advantage, as any one trying it will discover. The cases are not thin-walled, as the Heddon case, nor do they need the outer covering, as does the Moore

case. They are $16 \times 20\frac{1}{4}$ inches, outside measure, and fit over a Simplicity hive exactly. The ends are of $\frac{1}{2}$ -inch lumber, and the sides of $\frac{3}{4}$ -inch. When they are placed on the hive, a honey-board goes between, and they can be tiered up, one above another, the same as the bodies. We believe we have written to you how this plan of reversing frames and sections can be utilized in a chaff hive.

And now, having made it plain (as we think) how all these new and valuable features may be added to the hives we already have in use, with but little trouble and expense, by only slightly repairing them, we will mention only one of the many advantages this plan presents above any other method yet offered. This, of course, we consider the most important of all. It is the retention of our good father Langstroth's movable hanging-comb frame, that we all love to manipulate so well. If, however, we have not made it sufficiently plain, we shall be pleased to try again. HEMPHILL & GOODMAN.

Elsberry, Mo., Feb. 12, 1885.

Thank you, friends, for the caution about being in haste to drop our old hives and take up new ones. I have already reversed Simplicity hives on a plan similar to the one you advise. Instead of sawing off any thing from the top edge of the Simplicity hive, however, I would make a frame such as would be obtained by taking a common Simplicity cover, and sawing half an inch from the lower edge, clear around. This will go right on the hive, and may be bradded fast. The strips to hold the frames in place I would make of tin, folded much like an ordinary tin rabbet, only being half an inch on each edge. Push these down on top of the frames, leaving the sharp edges of the tin sticking up. A nail driven into the side of the hive, so its head lies snug down into its channel, with folded tin, will hold it in place so the hive may be inverted. We found, however, that a whole Simplicity hive was pretty heavy; and half-depth frames would doubtless be more easily handled, and would work nicer. See the article from Dr. Tinker, on page 203.

THE STINGLESS BEES OF MEXICO.

MORE ABOUT THEM.

THE statement of John L. Gregg, about the small bees of Mexico, is by no means a new thing. These bees are well known to entomologists as the honey-bees of the tropics, which are very small, have no stings, and live in very large colonies. They are known as *Meliponæ*. The wings are shorter than the abdomen, and the mandibles are not toothed. They are found only in South and North America, and not in the other continents. There are several species of them. Some build their combs in hollow trees, some in banks, and others suspend their nests from branches of trees. One variety builds clay hives, and its honey is said to be excellent. It is not probable that these bees would thrive in our cool climate.

MICA FOR BEE-VEILS, ETC.

I send you a sample of our mica, which, as you will find, can be split with a knife into very thin sheets, which I think would make excellent eye-pieces for bee-veils, also for observation-holes for

hives. This is only a small size. It can be cut with scissors with ease, and pierced with a needle so it can be sewn. Plates 6 or 8 inches square can be procured; but this size is dear, on account of the demand for it for stoves. The small sizes, like the sample, can be procured quite cheaply, for \$2.00 a pound, about; and a pound would make a large number of sheets. This mica is very abundant here. It was mined by the aborigines who built the great mounds in Ohio and other parts of the West, in which plates and sheets and ornaments of it are found; but as a large quantity of rock has to be moved to get to the mica, it has a market value of from \$4.00 to \$10.00 per pound, for merchantable sizes. HENRY STEWART.

Highlands, N. C., Feb., 1886.

Friend S., we are much obliged for the additional facts you give in regard to these bees; and although it may be true that they will not live here in the North, what is to hinder sending our boys and girls down to Mexico to look after them? Who will volunteer to see whether it be not possible to produce honey that can be profitably shipped north, from these new bees?—In regard to the mica, it has been several times before our people, and bee-veils have been advertised with mica fronts. Many thanks for your beautiful specimens.

BEE-TALKS.

NO. 2.

MAN is a mimic, it is said; and this is true to a large extent. We do as we have learned from others. But I find that we all have some ways of our own. No matter how well we may have learned our trade or profession, we will do some things differently from others, or the way we were taught to do. It is all right that we should do so. It is the only way we, as a whole, make any improvements. It is those departures from the old ruts that result in our valuable inventions in every thing. Our most successful bee-keepers differ very much in their manner of management of their bees. Almost every one has a way of his own, and I have sometimes thought I was an odd one, as I have so many of my own notions. Still, I have learned and practice a great deal that I have learned from others. I take the *A. B. J.* and *GLEANINGS*, two very valuable papers, and I would not do without either for three times their cost. But the best book that I have is my bees. They are a great study, and I am all the time learning something new about them.

I have been the owner of more or less bees for over forty years (I am now 62), and what I say or do must be done soon; and if I write any thing that would be misleading to beginners, I ask the old heads in the bee-keeping fraternity to correct me. But we must bear in mind that location has a great deal to do with results; and the more bees one has, the more he has to change his manner of operations. Plans that would do for ten or twenty colonies won't do for one hundred or more.

Beginners in the bee-business should do one of two things—either start with a few bees, or work two or three seasons with a good practical bee-keeper, one who has made bee-keeping a success, and has handled a large number of colonies; and

then, in connection with the work, read all the standard works on bees, including the bee-papers. I think the last plan the better of the two.

I believe that bee-keeping can be made a success if the party engaged in it has a liking for the business, and starts in a good location. But the bee-business is not all honey. I have found, in my experience, a great many pull-backs and losses, and many things that did not come up to my expectations but I have blundered along until I have learned something about the bees and about my locality, etc. In my remarks I wish to speak of my management, and my mistakes.

Bee-keepers as a rule, don't like to tell their blunders. They "blow" about their great success, big crops of honey, and figure up every thing at the highest price, and make a big show in figures. Perhaps the next year their success is in the little end of the horn—had bad luck; bees winter-killed, spring-dwindled, poor honey season, etc. Not a word said now. So the A B C class get only the bright side, and are led to think that bee-keeping is a big thing, and they go in heavily, only to end in failure and disappointment.

HOW DID I EVER COME TO BE A BEE-KEEPER?

Why, I just blundered into the business. I always had a liking for bees and honey. I tried hard to be a farmer. I went to Iowa 30 years ago, bought 200 acres of land on the prairie; stayed six years; then the war broke out, and at first there was no price for any thing I could raise on the farm. We had some relatives here in Platteville, so we left the farm and came here to visit; stayed a year, and then went back to the farm again.

When we got here I had to do something for a living, as my labor was about all we had to depend on to support myself, wife, and one little boy, then five years old. About that time I saw an advertisement, "Agents wanted, to sell Metcalf's Bee-hives." I took the agency, got a sample hive, and made the hives myself. At that time almost every farmer kept a few swarms of bees. The hives sold for \$2.50 each; the patent to use them, \$5.00 for a farm-right. I had all I got for hives, and half for the patent. I soon made enough to buy the county-right, and then I bought two more counties. I took some bees in trade, and that is the way I got started.

The hive was a frame hive, 12 x 12 inches, and 17 inches high; used 8 frames standing on the bottom. It had a movable front. I made them single for one colony; double for two, and quadruple for four colonies, all single-walled hives, no chaff hives then, nor extractors. I worked my bees for comb honey in large boxes, 30 lbs. or more. I soon divided my boxes down to 3 lbs. Honey sold then from 25 to 30 cts. at home. I kept increasing slowly until the fall of 1871, when I had 123 colonies of bees. I already had them in three apiaries. All old veterans will remember that winter of 1871 and '72. In the spring I had 20 colonies left alive.

The next fall I started in the winter with 50, and that winter was a hard one. The spring of 1873 I had 14 colonies alive. Then I made up my mind that my hive was too small, so I commenced to make larger hives. I made them $13\frac{1}{2} \times 13\frac{1}{2}$, and 22 inches high, inside measure. I used 9 frames, and made them quadruple, or, as they are called nowadays, tenement hives, holding four colonies, but at that time I made them single-walled. I changed my 14 colonies all into the large hives. My stock of old hives was used up for kindling-wood. There

was no sale for hives, as all the bees in the country about here were dead.

Now right here let me mention one of my blunders. I got me an account-book, and kept a record of just what was done with every individual colony, but I failed to give my number of colonies in the spring and fall, and amount of honey taken each year—in fact, no general management, which would have been of more value for reference. But I make out this much: That in the fall of 1880 we had 220 colonies; in the spring of 1881, we had lost all but 72. We had one yard of over 60 colonies, that went down to 3; cause of the loss, too windy a location, very hard winter, and we extracted too close late in the season.

The year of 1881 was a poor season for honey, but we increased our 75 colonies to 157 in the fall, and took 2000 lbs. of honey, all extracted, and had our bees fixed up in splendid order for winter.

The winter of 1881 and '82 proved to be an open, warm winter. Of the 157 in the fall, we had 155 colonies in the spring, which we increased to 295 in the fall, and took 13,000 lbs. of honey.

The spring of 1883 we had 211 colonies in five yards. The loss was almost all from desertion in the spring. From the 211 colonies in the spring of 1883 we extracted 22,037 lbs. of honey—an average of 104½ lbs. per colony, spring count. I failed to record the number of colonies in the fall of 1883.

The spring of 1884 we had 291 colonies. From 287 colonies we extracted 31,283 lbs. of honey; comb honey, 206 lbs. from 4 colonies—an average of 109 lbs. for the 287 extracted, and 51½ lbs. average of comb honey from the four ran for comb honey. We went into winter quarters with 455 colonies.

Last winter was a hard one, and the spring of 1885 found us with 321 colonies—a loss of 134. From these 321 we extracted 33,086 lbs. of honey, and increased the bees to 510 colonies. Our average per colony this year was 163 lbs.; but owing to so much wet weather at the close of the basswood season, and no fall honey, we had to feed back to the bees 6114 lbs. of honey, to give them enough to winter on. That left us 26,972 lbs. after feeding back. Our average would be 84 lbs. per colony, spring count.

I find it hard to tell just when to quit taking honey, and get all the honey we can, and leave them enough for their winter stores. In this locality the basswood is the last thing that gives us any surplus. We try to time it so that the bees will have a good supply for winter out of the basswood. This year, when the basswood was half through, we commenced as usual to leave in full combs of honey in the back-side of the hives, leaving in more and more every day. The last day we extracted we left in one-half of the honey. The next day was a rainy day, and the next five days were wet, drizzly weather, and the basswood season was over. The bees were short of honey for winter. We waited three weeks and then went to feeding. We fed one yard at a time until all were fed. We fed the last honey we extracted, and fed all but one yard; that one had enough, and it was the next yard in rotation to extract, but we did not get to it, on account of the rain.

We use the pepper-box feeder, quart size. It holds three lbs. We put two on a hive at a time, and fill them up again in two days. We fed one yard of 100 colonies six feedersful each—18 lbs. each, or 1800 lbs. for the 100 colonies. The other yards were fed, some 18 lbs., some 12 lbs., and some 6 lbs., according

to their wants. We did not go to the trouble to examine all the hives in a yard. We would open about 10 or 12, take a look at them, and make up our mind how much they wanted, and then feed all the colonies in the yard alike. Be sure to give them enough. It is much better to feed in the fall than in the spring.

Now just a word about hives. I very much prefer a quadruple hive, four colonies; then have it doubled-walled, and fill in between the walls with chaff. We are making and using my improved Metcalf hive and some Langstroth hives; but for our own use we put the L. hive in a quadruple form, two or more stories high, lined all around the outside with a chaff cushion. The cushions are put inside of the hive. We winter all our bees outdoors, and we have to give them all the protection we can.

Platteville, Wis.

E. FRANCE.

Thanks, friend F., for the valuable facts you give us. The matter you mention in regard to extracting just enough and no more is indeed a fine point. We once had a similar experience. During the last of my extracting, the robbers got so bad we stopped, and the last half of our apiary was not finished at all. They wintered nicely, while the half that had been extracted, a good many of them starved, and others had to be tinkered with. Now, let me suggest that taking out heavy combs and setting them away will fix this nicely. I know it is some trouble, but I think it is more trouble to throw honey out of combs, and then feed it back again. From the experiments recently given in feeding back extracted honey to get sections finished, it looks as if from one-fourth to one-half of your honey is lost where you throw it out and then feed it back, compared with the plan of just lifting full capped combs from the hives and setting them back when needed. I may suggest to our readers, that friend France is the one who gave us the idea of the pepper-box feeder, shown in our price list, page 13. I am glad to hear that somebody is using tenement hives, and likes them.

NOTES FROM THE BANNER APIARY.

NO. 75.

MR. HEDDON'S NEW HIVE AND SYSTEM.

WHEN Mr. Heddon explained to me, a year ago; the beauty and originality of his new hive and system, I was fairly captivated. I then felt, and *still* feel, that his invention is second only to father Langstroth's. I firmly believe, in fact I *know*, from actual experience with the hive, that Mr. Heddon has given us a movable *hive*, in the sense that we before had a movable *frame*. I *know* that almost every manipulation in an apiary run for honey can be performed without removing a single frame. It is a grand step. Although well satisfied of what could be done with his hive, Mr. Heddon did not patent it until he had proved, by *two years'* actual work with it, that it was worthy of a patent. Naturally, Mr. Heddon expected, when he made public his invention, that there would be some "pooh-poohing" done; and then, when its value was finally recognized, he expected to hear the assertion that it was not *new*. He was mistaken in only one particular,

and that is in the amount of "pooh-poohing" that would be done. The cry of "worthless" was scarcely breathed ere it died upon the lips that uttered it, and was dropped for the oile of "Oh! it's old, it's old, it's *old*"—the very same cry with which father Langstroth was "dogged." Now, all bee-keepers rise up and call him blessed. Let us not repeat the mistake of our fathers.

Let us not first *assume* that Mr. Heddon's hive is "old," and *then* ransack the Old World as well as the New for proofs of our assumptions; let us not *desire* to arrive at a certain conclusion, but rather to learn the *truth*.

Mr. Heddon does not claim to be the inventor of shallow frames, of reversible frames, of reversible hives, nor of "thumb-screws;" but he was the first to invent and make public the construction of a brood-chamber, not "hive" (here is where those who cry "old," "old," make their mistake) in two horizontal, separable sections. While he *claims* them only when invertible, he has a *moral* right to them in any shape; and let any supply-dealer now advertise Langstroth brood chambers in two horizontal, separable, interchangeable sections, and the moral sense of the community will at once recognize the theft. That Mr. Heddon had in mind the fact that many advantages would accrue from using shallow Langstroth frames, and interchanging them, is shown by the third paragraph on page 96 of "Success in Bee Culture." It reads as follows: "Having the brood-chamber in two horizontal sections, or parts, admitting of interchanging the upper with the lower portion at will, for the purposes specified, placing the part below containing the most honey, putting both in a new position, produces many of the same results and advantages given us by inverting. . ."

Those who are thinking of *evading* Mr. Heddon's patent by using half-depth Langstroth frames should know that they are losing many advantages by so doing. A single section can not be inverted, which is an advantage when only one case is used, as in contracting the brood-nest. The frames will never be solid full of comb. Queen-cells can not be so easily clipped without removing frames, and the bees can not be shaken from the case, as the frames are loose.

I am well aware that many of our inventions are the result of many minds. It is seldom that one inventor makes such a jump as did father Langstroth; but each space covered by a "little jump" belongs to the man who cleared it, and is patentable. Perhaps many of the readers of GLEANINGS do not know exactly what Mr. Heddon has invented. For their benefit I will give some of his most prominent claims.

1. Arranging comb-frames within a case which is a bee-space deeper than the frames, in such a manner as to hold them securely at will in a central position, leaving half a bee-space on each side, or readily shifting the whole bee-space to either side.

2. He was long since the inventor of a honey-board containing one or more bee-spaces, or parts thereof, on one or both sides, and he *now* claims such a board when used in *combination* with a hive whose brood-chamber is constructed in two or more horizontal, separable, and interchangeable sections.

3. The use of a set-screw, when *combined* with closed-end frames, in a case, *substantially as he uses it*.

4. The projecting tin rests, when used in *combi-*

nation with the set-screws, frame, and case (any claim holds its equivalent), and these tin rests are a grand thing in combination with the screws, wedges, or levers, or anything of the kind.

5. The combination, with said comb-frame cases, of a cover containing a bee-space, or partial bee-space in one or both of its surfaces.

6. The combination, with one or more invertible-hive sections, of the bottom-board, arranged as described and illustrated.

And now comes a broad original claim.

7. In a bee-hive, a brood-chamber, composed of two or more horizontal, separable, interchangeable, and invertible sections, each section containing within itself a set of brood-comb frames whose depth is one bee space less than the depth of the case.

There is one or two more less important claims; but the above are enough to show our intelligent public that no one can make a hive half as good as Mr. Heddon's without infringing.

I should like to have it explained how it can be that things *dead* can be "just like" valuable living things, just born, that everybody now wants. Why did they die? There *must* have been a difference. There *is* a difference, and it is this: Before modern bee-culture divided hives into two radically different apartments (brood and surplus), tiering sections were suggested; but all these ideas perished, and have no more to do with invalidating Mr. Heddon's patent than has one of the lost arts. In other words, making *hives* in horizontal sections is *not* new; but the making of a brood-chamber of "two or more horizontal, separable, interchangeable, and invertible sections," is *new*.

W. Z. HUTCHINSON.

Rogersville, Genesee Co., Mich.

Friend H., it may be I have not gone deep enough into the matter; but to my comprehension it seems to me that the following answers completely your last paragraph and pretty much all of the above article.

KRETCHMER'S ALTERNATING HIVE.

THE PRINCIPLE NOT NEW; IN USE AS EARLY AS 1865.

IT seems to me that James Heddon's claim on his new hives is rather sweeping at this late day. His hive is in substance the same as my "Alternating hive," made by me in 1865; patented July 23, 1867, No. 67,123, and given for free use to the public about ten years ago.

It consisted of three equal tiers, each tier about 7 inches deep, and containing each 10 frames. The upper tier was used for surplus honey, and the two lower tiers for brood; after the two lower tiers were filled, and the surplus-honey tier added, the two brood-tiers were "alternated;" that is, the middle tier was placed at the bottom, and the bottom one placed in the middle, so that by this arrangement the center of the brood-nest was brought close to the surplus-honey chamber, into which the bees did very readily enter. Combs had frequently been started by having this surplus tier at the bottom for a short time; the top of the original brood-nest was by this alternating process brought in the center, and most of the honey removed to the surplus-chamber; and for swarming artificially, either half could be taken for a new swarm, on the plan of the old section straw hive, once so much in use in Germany.

In proof of the assertion, I refer to the patent above named, and from which I copy a few lines to show more fully that some of friend Heddon's devices are quite old.

"The vertical pieces, M M, are made wide enough to have the edges of the several frames touch each other;" and, "Between the sides of the case and the movable frames I insert a wedge-shaped piece of lath for the purpose of closing the crevices between the several frames;" and, "The hive consists of three or more equal sections, of which two form the brood-chamber, for the purpose above named."

Now here, friend Root, we have the several tiers, the closed-end brood-frame, held together by a wedge (equivalent to a screw), all in shape to alternate, reverse, or invert at pleasure, and all of which belongs to the public.

E. KRETCHMER.

Coburg, Iowa, Feb. 13, 1886.

IMPORTED ITALIAN QUEENS AND THEIR PROGENY.

ALSO SOMETHING ABOUT FRIEND BENTON'S SUCCESS IN SHIPPING BY MAIL.

IN reading friend Doolittle's article on imported queens, or their daughters, in GLEANINGS for Feb. 15, I am aroused to speak just a word in their favor. My experience in bee-keeping is very small, and much less with imported stock; however, I like to speak once in a while, whether my few words are of any importance or not. In the fall of 1884 I wrote to Mr. Benton (at Munich, Germany) for sample workers of his Italian and Cyprian bees, and inclosed 10 cts. to pay postage on them. About a month later I received the bees in good shape; and on opening the cage I found a medium-sized Italian queen, rather dark in color, though bright and lively, after her 14-day journey. They were accompanied by a letter, stating that he feared the bees would worry themselves to death if shipped alone, so he picked the poorest-looking queen he had, and sent her with them. He said her progeny had not hatched, so he could not tell what her bees would be; but he said, if I thought her worth \$1.00 to me I might send him the additional 90 cts., which I did at once. He said her mother was imported from Bologna, Italy.

I introduced her at once, and in less than twelve hours she was depositing eggs. This was about the 20th of September, so her bees did not have a chance to fly much. They were like her, rather dark, though all three-banded. I put them in the cellar the 18th of November, and took them out the 25th April. She was bright as a dollar. The bees were mostly old when put in, in consequence of which they were reduced to two frames of bees, both of which were partly filled with brood. I fed them nothing, nor gave them any additional brood, and from that time till the latter part of June I took from her 11 frames of brood, with all adhering bees, to help build up others that were just as strong when set out. They were strong enough by this time, so I divided them and made two good colonies in 10-frame hives.

The latter part of July I extracted from the artificial colony (after raising their own queen), 50 lbs. of fine honey. I weighed the hive early the next morning, and again the following morning, and found a gain of 11 lbs., and a one-story hive at that.

This is my only experience with imported stock; but I think it speaks well for friend Benton's *cull*.

ELIAS FOX.

Hillsborough, Wis., Feb. 22, 1886.

CELLAR WINTERING OF BEES.

A DIALOGUE.

"GOOD morning, neighbor D. I called to see how the bees were wintering. I am losing some of mine."

"Am sorry you are losing bees, friend H. Mine seem to be wintering well, especially those in the bee-cellar. In fact, I never had bees appear so nice and quiet as they do this winter in the cellar."

"Should like to see them; but from what I read, written by some of the 'big lights,' I suppose you never go into your bee-cellar after the bees are put in until you do so to take them out in the spring."

"Oh! yes, I do. I go into it regularly once every two weeks, and oftener, if I think any thing needs doing in there. I suppose I am considered a heretic on this question; but be that as it may, I have every reason to believe that no scientific wintering of bees can be accomplished when no observations are taken, except when the bees are put in and taken out of the cellar. Bro. Ira Barber gives the temperature of his cellar as ranging from 60 to 90°, while by private letter he says he does not take a register of the temperature except when he puts them in and takes them out. These figures, therefore, are of necessity misleading; for all know that the commotion caused in moving bees would raise the temperature of the cellar much above the normal heat. I venture the assertion, that if Mr. Barber will take a daily register of the temperature of his cellar, as does Bro. L. C. Root, by letting a thermometer down through a hole in the floor, he will find that the temperature of his cellar is not much above that reported by other bee-men. But, come; if you wish to go into the cellar we will go."

"What! got three doors to go through to get in?"

"Yes; these three doors inclose two dead-air spaces, and it is a rare thing when any frost gets in this second space, where we will stand while I close the two outer doors and light a lamp. Now, before we open the other door I wish to say to you that you will be careful not to hit any of the hives, nor breathe in any way except through the nostrils; for the breath by way of the mouth in the cellar arouses the bees more than hitting the hives, both of which I desire to avoid."

"What is that low murmuring noise I hear?"

"That is the contented hum of the bees in their winter repose, and you can always know that bees are wintering well when 50 colonies make no louder noise than you now hear."

"But according to Clarke, of Canada, I thought that bees, when wintering well, were 'hibernating,' and gave no signs of life."

"Bees never hibernate as do ants, wasps, flies, etc.; and I can not indorse friend Clarke's word as applicable to bees. Quiescence would be much more appropriate, in my opinion, than hibernation."

"Hark! there is a bee flying. Do they fly out here in the dark?"

"Yes, that is only a bee ready to die with old age;

and as instinct prompts the old bees to leave the hive when the temperature will permit, it is only obeying nature's law in flying out. See, here are quite a few bees on the floor, but not nearly as many as is the average of most winters. I often come in here in the dark, and listen for these old bees; and many times before this winter, from two to five would fly out while I was counting 100 slowly; but this winter scarcely more than one comes out while I count 200."

"What have you on the floor here? Sawdust?"

"Yes, every month I bring in about a bushel and a half of fine dry basswood sawdust, such as I make while sawing sections, and scatter it on the floor. This sawdust will absorb almost its bulk of moisture, so I keep it in here to keep all dry, sweet, and nice. Before I used this, the dead bees on the floor would mold and smell bad, and the combs near the bottom of the hive would also mold; but now all smells sweet and nice, and no mold appears."

"Here is your thermometer. I see it marks 44°. What is the extreme of temperature in here?"

"From 43 to 45° above zero. After the first few days when the bees are set in, then it is as high as 55 to 60°, but lowers to where you see it."

"What, doesn't a warm spell in winter, or a long cold spell, have any effect upon the temperature in here?"

"No: and a cellar that allowed of the outside temperature affecting to any extent that inside, I should consider faulty. There are two roofs and three feet of dry earth over this, which, with the three doors, keeps an even temperature. Now step up and look at these yellow fellows when I take off this sawdust cushion and roll back the quilt."

"Why, Doolittle, they are dead."

"No, I guess not."

"But they don't stir."

"I will breathe upon them."

"They are alive! that is a fact. Do they keep always thus quiet?"

"I have never seen them more uneasy this winter; but the year I used artificial heat, and lost so heavily, I could not lift a quilt like that without their boiling all over the tops of the frames."

"Where are your ventilators?"

"Here is the sub-earth ventilator, but it is shut off at the outer end and has been for the past three months, while the other ventilator is in the opposite end, and at the top. This also is shut down to a hole less than two inches in diameter, as I find that all the air the bees need to keep them in the best condition comes through the masonwork, doors, and earth covering. This is what some call no ventilation whatever; but you see the air is pure and good in here. Well, we will go now; but first notice that the bees are nearly if not quite as quiet now as they were when we entered a quarter of an hour ago. If our entering does not disturb them any, why should I not have the privilege of coming in here as often as I please? Good-morning. Come again when you wish to learn more of the bees."

G. M. DOOLITTLE.

Bordino, N. Y., March 1, 1886.

There, friend D., you have got your bee-cellar so you keep it just about the temperature of that deep cold well you told us about, and that is pretty near the temperature of old Mother Earth in your locality. I am somewhat surprised, however, that you are able to keep it so low with the ventilators

shut off as you have them. It seems to me your bees are quite accommodating this winter. Ernest wishes me to say that the above is just to his notion, because it is so very plain and clear that even the juveniles will understand every word of it.

WORKING WITHOUT SEPARATORS, ETC.

ALSO A SUGGESTION IN REGARD TO GETTING LARGE
YIELDS OF COMB HONEY, EVEN IF
YOUR BEES DO SWARM.

THE following article was so lengthy as it came to us, that Ernest clipped off the last end of it, and it appeared on page 186 of last issue. As friend King did not feel satisfied with our mutilation of his production, the matter was referred to myself. After a careful examination, I decided there was so much value in the article, even though it were long, we give it here, and thus we have the first part last.

I do not use separators. With me they are an unnecessary trouble and expense. Last season I visited a neighbor's apiary,—found about a million little wooden separators with his surplus arrangements. He had some nice straight sections; so had I without separators. I think I can get more marketable honey without them. If I have an occasional thick or bulged one, I keep it to sell to my neighbors. I find but a few, however, and am often obliged to take from my nice smooth ones to supply the neighborhood demand. I have used separators, also wide frames with separators, but I do not care to change from my present system, which I have used long enough to know how it goes.

I use a Heddon case with a false section, or block, $\frac{3}{4}$ in. thick at one side. When filled and glued, I can easily remove this block, when the sections can be readily taken out.

My principal business is working for comb honey; and what I want is the best possible result and, to obtain this with as little work per colony as possible, consistent with good management. I am willing to work, and always find plenty to do; but I always aim to avoid any unnecessary manipulation. If it is desired to force all the honey from the brood-chamber at the commencement of the honey season, and fill the hive below with brood, I can usually accomplish this, practically, at one operation, which every bee-keeper must do at least once at swarming season; and if no swarm occurs, this is not necessary; for what good strong colony is there but will store an abundance of comb honey if no swarm be cast under ordinary circumstances?

But we were speaking of the probability of one swarm being cast per colony. One writer mentions that if the combs be reversed at the proper time, swarming will be allayed. What an idea of benefit is this! Who can tell, without almost daily examination, when this "proper time" is? Probably about once in fifty times, one would guess right, and nothing will so likely increase the desire to swarm, as reversing combs and increasing the amount of brood and bees. I believe in strong colonies and lots of bees, but I don't think it necessary to carry it to an excess; and it is a question with many prominent bee-keepers, if not more comb honey can be obtained from a given number of colonies, if they were not allowed to increase the capacity for

brood-raising to more than half the capacity that would be reached by reversing frames, thus preventing swarming in nearly all cases, enough brood being hatched to keep the colony strong and in good working force. The surplus honey needed for brood-rearing, would thus be stored in the sections. It seems to me that some who have been advocating little manipulation of combs, have now taken a widely different stand, and are inventing plans which end in the excessive manipulation of combs, hives, etc., without any decided advantage. If a moderately shallow hive be used, there need be no difficulty at just the time required to practically fill all the frames with brood if desired, by the plan I use for the prevention of after-swarms, and to keep my working colonies in prime condition for storing comb honey every day of the season.

I have had many colonies in my yard this last season, which, during the height of the white-clover season, were literally filled below (10 frames) with brood, while they were carrying along nicely a couple of cases of sections; and I believe if I should wish, I could, in nineteen cases out of twenty, produce the same results, and, too, without the use of reversible frames. How many bee-keepers there are who are often heard to remark, "If I could only keep my bees from swarming," believing as they do, that any colony in good condition in the spring would store a satisfactory amount of honey during the early honey season, if no swarm were to issue. A few bee-keepers claim that they can obtain as much comb honey from a new swarm hived on fdn., as they would from the old colony if no swarm had issued. I believe this to be far from customary, even with those who have advanced such statements, and that all such occurrences are but rare exceptions to the general rule. As it is natural for bees to commence swarming at the beginning of the honey season, such swarming may be expected, if not depended upon. In nearly all cases, colonies that send out first swarms about the commencement of the early honey season, have made more or less advancement on their sections, which must be suspended, unless the swarm (the new colony) will continue the work.

Now, what shall be done to keep up the work in the sections? A great many would return the swarm. I have done so, but I don't any more in the early part of the season. Every one knows how "strong," as we say, a new swarm will work. My plan is this: If a swarm issue, hive it on a new stand. At the time, or soon after, give them about $\frac{3}{4}$ of the brood they have just left; fill up the body of the hive with frames of fdn., place the sections they have left, upon them, and you have them at work on the sections with even more zeal than they had before, and without any delay, and upon the old stand you have a nucleus "as is a nucleus," into which, after the first night, slip a virgin queen if possible, and it will be a strong colony amazingly quick, and ready for winter in good shape, and fall-honey surplus, too, if there be any. In this way all after-swarming is prevented, the number of colonies is doubled, or nearly so, and the original number of working colonies is kept strong, and hard at work, too, on the sections, every day, through the honey season.

In introducing queens, either laying or virgin, I do not consider it necessary or wise to leave the colony undisturbed more than a few hours after releasing the queen. If they are all right next day, I consid-

er that enough; if they are rejected, they will be missing, and it is time we should know it. I have never lost one from opening the hive the next day, or soon after, and I have introduced hundreds of them.

C. W. KING.

Kibbies, Mich., Feb. 10, 1886.

After reading the above, please turn to page 186 of last number for the rest of the article.—The plan of saving bulged combs for the home retail trade is an excellent idea; and for economy in packing away neatly, we can set them in the regular retail cases by putting empty sections between sections where the honey is bulged out very badly.—The plan of giving the brood-combs from the parent stock to a new swarm has been a good deal practiced; but friend Doolittle and others object, as it often causes continued swarming. When your bees get a swarming mania, very likely this may be a trouble. If they have not a queen to swarm out with, they will often swarm as soon as they can get one hatched.

MRS. HARRISON TELLS US HOW THEY WINTER THEIR BEES.

CELLAR WINTERING COMPARED WITH CHAFF PACKING.

MR. EDITOR.—Your chaff hives may be the very best for wintering bees, and far ahead of cellar wintering; but, what are we to do who have not got them and are not able to procure them? We are wintering forty colonies in the cellar, and, as far as I can judge, they are as bright and as healthy as in June. The cellar is paved with brick, and I occasionally sweep up the few dead bees, and the air is sweet and pure. Once, during a very cold spell, the thermometer went down to 38°; but most of the time it kept at the neighborhood of 45°. The bees were put in the 23d of December, after enjoying a fly for several days.

The bee-cellar is partitioned off from the main one, and has a sub-earth ventilator. As far as I am able to judge, the ventilator does not lower the temperature, if kept open during severe weather, and there appear to be counter-currents through it. There is a window, hung on hinges, but there has been no occasion to open it as yet. Since the introduction of the sub-earth ventilator, the air in the main cellar is much purer than formerly, and no mold accumulates.

As to "lugging hives in and out," there are plenty of men on the street-corners glad to do it for a consideration, and two men could carry in one hundred in half a day. Longfellow says something like this: "Take whatever lieth near thee, and work from it thy work of art." I could not command chaff hives, but I had the cellar, and a few dollars fixed it up for bees; and some men, glad to earn a few pounds of honey, carried the bees in.

About as many colonies are wintering on their summer stands, protected in four different ways. I had some barrels not in use; some were oil-barrels, others apple and pork barrels. The bees had on Hill devices, covered with new muslin, which was fastened down to the top of the hive by running a hot smoothing-iron around to melt the propolis, so no bees could come up; then two thicknesses of woolen cloth and wire netting over this, which was

kept firmly in place by nailing on little cleats of wood. When thus prepared, and the bees fastened in in front, they were ready to barrel. Into the bottom of this was poured a quantity of chaff, and the hive (an eight-frame Langstroth) dropped in. All around the hive, chaff was packed very closely—bottom, top, and sides, and then turned down upon its former stand. Colonies in the barrels appear to carry out fewer bees than the others, and during warm days they play as in summer.

I have one hive called Cyula Linswik, as it is fixed as nearly as possible as Mr. Hutchinson described her manner of wintering. A number of hives are placed against the east side of our house, and packed between and around them with leaves, chaff cushions on top, and the whole covered with boards to keep off wet. A few hives are standing singly, with four thicknesses of newspapers above the muslin, and the cap shut down over paper, and chaff cushions above—one without paper. I expect the barrel hives to come out ahead; if so, it will prove the value of chaff hives. As the bees upon their summer stands have access to water frequently, I shall put wet cotton rags in the porticos of those in the cellar, so that they can help themselves if they wish to. Bees are now upon the wing.

MRS. L. HARRISON.

Peoria, Ill., Feb. 23, 1886.

By all means, winter the bees in the cellar when you are situated so it will be the handiest and cheapest, Mrs. H.—In regard to cheap help, there are men standing around here in Medina as well as in Peoria; but my experience is, that it would be about as much trouble to teach them to carry the hives into the cellar, and set them down properly, as to employ expensive help for the purpose; and sooner or later these same men who have not any thing to do, usually want about as big pay as anybody.—Very likely your barrel arrangements for packing outdoors will answer; but is it not a great deal more trouble, and, in the end, expense, than to have chaff hives that are always ready for both winter and summer?

ANOTHER DANGER AHEAD OF US.

A THREATENED INCREASE OF POSTAGE ON FOURTH-CLASS MATTER.

OUR readers may not all be aware there is a movement on foot to increase the postage on seeds, merchandise, etc., although it is now four times what it is in Canada; that is, we pay one cent an ounce, while the Canadians pay one cent for four ounces. I have written to our Representative from this district, and I have also written to Prof. Cook, to ask his help. Here is what he advises.

Dear Friend Root:—Indeed this postage matter is a subject of tremendous importance. We can each only appeal to our Congressmen; and when we can, write up the matter for papers, and send papers to our Representatives and Senators. Why not you ask all readers of GLEANINGS to appeal to their Congressmen? I don't think the bill can pass; but there is danger.

A. J. COOK.

Agricultural College, Lansing, Mich., Mar. 2, 1886.

Later:—The bill has failed.

WHAT TO DO, AND HOW TO BE HAPPY WHILE DOING IT.

Continued from Feb. 15.

CHAPTER XI.

The laborer is worthy of his hire.—LUKE 10:7.

One of the most interesting things regarding any kind of work is the point where the cash comes in. When you set children at work, they usually like to see the cash come in pretty soon. A great many of them would like their pay every night, and some of them, indeed, think it a hard thing to wait until night comes. Well, we children of an older growth are a good deal that way. We do not like to work a great while without seeing some of the dollars and cents. Years ago, when I earned 25 cents by being at the head of the spelling-class more than any other pupil in the old schoolhouse, I debated quite a time as to how I should invest the 25 cents. I finally decided on launching out into the poultry business. So I invested the whole of my 25 cents in poultry. I talked the matter over with my mother, and got her opinion and experience. I suggested, that if I invested in poultry, I should get returns for my investment right away. "Why, mother," said I, "if I buy two good hens, they will lay two eggs the very next day, will they not?" She thought likely they would; so I purchased two old biddies with my 25 cents, and rejoiced in being the possessor of two large white eggs, almost before I had got my poultry yard and house ready for the occupants. I swapped my eggs to my mother for corn and other necessary feed. Like a wise and good mother, she taught me to sell my produce at a fair market price, and pay for the feed. Of course, I soon learned, as has many another juvenile poultry-keeper, that it does not necessarily follow that I should have two eggs every day in the year, simply because I was the possessor of two good hens. I think I figured out that, with good care, I could depend on *one* egg a day for *three* hens. This was over thirty years ago. I do not know how much advance has been made in poultry since that time. Probably some of the non-sitters will do better. But I think an egg each day in the year, for three hens, is a pretty fair average, even now. My juvenile figures demonstrated that, as a rule, one egg a day, judiciously invested, would furnish food for *five* hens, so there is not, or, at least, there was not then, any very dazzling profits in the poultry business, where one has to buy

the feed and sell the eggs at the market price, to be consumed for food. Of course, if we are enabled to sell our eggs for breeding purposes, at one or two dollars a dozen, it puts quite a different shade on the business; and, by the way, we are to make our money by raising the best, and *the very best*, of every thing. The world is full of people who have plenty of money, and who are willing to part with their money for nice things—*nice* products, for instance, but who won't pay out their money at all, unless they can see something a little above the general average.

Now, this same idea is to apply to our plants. A little money is *very* convenient to have when you are starting out in any business; and it seems to go a great deal further, and do a great deal more good, when it comes as a result of that business. The friends have often accused me of having more of a liking for small bee-keepers than I have for large ones. They say I publish reports from some A B C scholar who has only one hive of bees, and correspondingly little experience, when I would entirely pass by a finely written article from one who counts his colonies by the hundreds, and his honey by the ton. I do not believe it is quite as bad as that, but yet I do not know but I ought to plead guilty, to a certain extent. I do love to see people start in business, especially, where they start in a healthy, self-sustaining way. I like to see a boy raising nice heads of lettuce; and when I see him on the market with a basketful, swapping these heads of lettuce for nickels, why, I just love that boy. I love the man or woman who buys his product, too, and I love the basket of lettuce. The whole transaction is a healthy, honest one. The boy is putting his shoulder to the wheel, and doing his part in the general economy of the world. He is a man in business on a small scale; and if he is thrifty and prudent with his little business, he will be so with a larger one. Why, we have God's promise for this very thing—"Thou hast been faithful over few things, I will make thee ruler over many things."

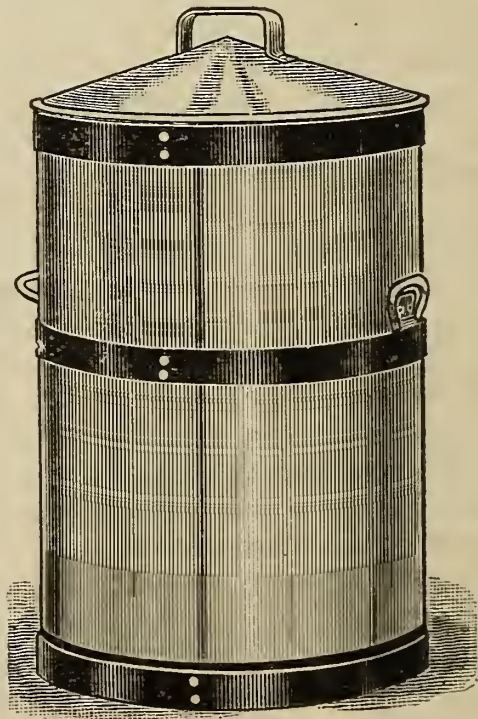
I suppose many of the friends have at

this date (it is toward the middle of March that I am writing) boxes full of beautiful little plants peeping forth from their mossy coverings, and asking, as well as they can ask, with their bright green leaves, to have more room and sunshine. How shall we get it? Windows warmed by stoves, greenhouses, cold-frames, and hot-beds, are all comparatively expensive. Very likely you have every inch of space occupied; may be you have boxes of plants, such as I have described, standing across the paths, so that when you go through your greenhouse you have to stoop down and crawl under, something as we did at Mammoth Cave, when we went through the passage called "Fat Man's Misery." Very likely you have boxes perched up in every possible shape, to get even a small share of sunlight that comes through every day or two. Well, what next? In most localities you can, by the middle of March, begin to make garden to some extent out of doors; that is, as soon as the frost is out of the ground you can put out hardy plants and sow hardy seeds. We want to begin to get rid of the expense of glass sash just as fast as possible, and yet we do not want to take risks, and have our plants either frozen outright, or greatly injured by being frosted. Let us work orderly and soberly and *surely*.

Where shall we have the garden, and how shall we fix it? Well, I would commence making garden in some protected spot such as I have mentioned for cold frames or hot-beds. If you can find a corner close up to some building, so that there is a protection on the north side and another on the west, to perfectly cut off north and west winds, you are all right. If the frost won't let you dig, clear off the ground so as to catch every bit of sunshine; and as fast as the sun thaws off a half-inch, scrape it off and let the sun get at the next half-inch, and so on. Pile these scrapings in a heap loosely, mixed with manure, and they won't freeze very much. Cover your ground at night with straw or old boards, or, better still, coarse manure. When you get down through the frost, dig your ground up and break it up fine to the depth of two feet or more, mixing it with manure, the best you can get.

Probably one of the first things you will get money from will be plants for early lettuce, cabbages, cauliflower, celery, onions, cress, etc. Now, you can attract visitors, and attract custom, by having this early garden neat and orderly. Weeding among these little plants, and pulling them to tie in

bunches, is laborious and back-breaking work, and I think it pays to make sunken walks, or paths, something as we do in a greenhouse, so as to raise the surface of your beds, say two feet high. The way we do it is to get some cheap 2 x 4 scantling; drive stakes in the ground, saw them off square, and nail a scantling on top; then get some old boards, drive them into the ground a little, and nail them against the sides of the scantling. Now shovel the dirt out of the paths, and throw it over in the center, mixed with manure. If there is a peat swamp near by (and you can almost always find one), draw peat and mix it with the soil. Peat will not only make the ground light, but its dark color will attract and hold the heat-giving rays of the sun, and will make your ground thaw out a good deal quicker than it otherwise would. It also prevents crusting. Ashes are also an excellent thing. Gregory, in his new book on fertilizers, calls hard-wood ashes worth from 30 to 40 cents a bushel. And I notice that most of the agricultural writers put them as high. In very many localities you can buy great quantities for 10 cents a bushel, if you pick them up from house to house, where they ordinarily throw them away. Get a tinsmith to make you some cheap tin cans something like the one shown in the cut below.



A CAN FOR SAVING ASHES.

It is true, a barrel will answer; but it is unsafe to store ashes in barrels, as has been repeatedly demonstrated. A tin can will last a lifetime, if properly cared for, and it is quite safe, light to handle, and easy to load up. Almost any tinsmith can make you a can holding about two barrels, for \$1.50. He

may have some damaged or rusty tin that he can work into it. For a dollar more you can get one of galvanized iron, with a cover to it, like the one in the picture. Leave these cans at the houses where they burn hard wood, and you will have your ashes all in good shape whenever you call for them. A few ashes raked into the surface when you put out your plants, or sow your seeds, will do almost as much good as guano or any kind of phosphate.

CAUTION IN REGARD TO USING ASHES.

These, as well as guano and almost all other fertilizers, remember, must be applied in homeopathic doses, and at the same time be thoroughly mixed in with the soil. Last fall, when they were putting lettuce-plants in the central bed in our greenhouse, it occurred to me that a coat of ashes would be a good thing to stir in with the peat and earth put on top of the stable manure. Accordingly I went over to the house and got perhaps half a bushel. I poured the ashes down in a certain spot, and then tried to spread them all over the bed. As a matter of course, there were more ashes left where the half-bushel was first poured down than on the other portions where I raked it over. They should have been sifted over evenly with a sieve, and then raked in, say at least two inches deep. On a large scale, the best implement for the purpose I have ever seen or heard of is Kemp & Burpees' manure-spreader. Well, I raked the ashes in until I thought they were mixed enough. Then we set out our good strong lettuce-plants. They started nicely, except where that one-half bushel was poured down. The boys wanted to dig these up, when we found them wilted, but I told them to let them be, as I wanted to see just how too much ashes would act. Well, a great part of the plants died; but here and there one remained that was able to stand the dose; and by the first of February these few began to take hold and grow, and, oh how they did grow! It is only once in a while that I get a luxuriance of growth that satisfies me; but these plants satisfied me in every respect. The leaves had a rich, bright, dark-green look, and they unfolded and stretched out at such a rate that there was a big change visible each night and morning. They made enormous heads of lettuce in just a few days, when they got a going. Well, this satisfied me that ashes may be applied at the rate of half a bushel to every eight feet square, without doing harm, if thoroughly raked in and stirred up with the soil; and this fertilizer

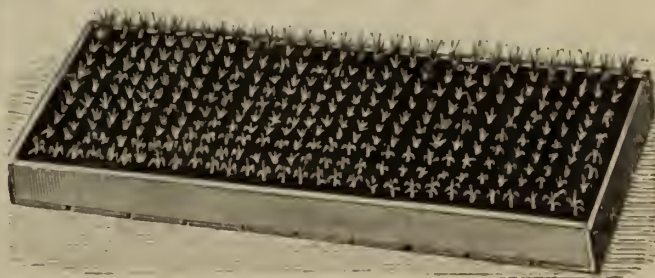
has one advantage over every other. It will never evaporate nor get lost. If the first crop does not use it all, the next will take what is left. Now, friends, save the ashes.

I told you what kind of beds we were making for raising plants. Now, much depends on starting right, and in having a system with this kind of work; therefore it behooves you to decide on a regular width for these raised plant-beds. I would have the scantling that runs along each side just far enough apart for common 3 x 6 sash to catch on lengthwise. Have one of the scantling a little lower than the other, so as to shed rain. Three or four inches will be enough. We want the beds made so that we can set in our shallow boxes, heretofore described, or so you can put the plants right into the earth, either way. For the first time in transplanting, we use shallower boxes, and made of lighter stuff, than those figured in Chapter IX. The kind we are using now for transplanting celery are 3 ft. long and 16 inches wide, outside. In order to get strength with lightness, we make them as in the cut below.



TRANSPLANTING-BOXES FOR SEEDLINGS.

To give drainage and strength, we have the bottom made of slats only three or four inches wide, and only $\frac{1}{4}$ inch thick. They are nailed on crosswise, as you will notice. Such light stuff would not be strong enough if put on lengthwise of the box. The sides of the box are $1\frac{1}{2}$ x $\frac{1}{2}$ inch. These are very easy to carry about, and answer just as well for small plants. From one of these boxes, the seeds of which were sown on the plan given at the close of Chapter VIII., we got 7500 plants. The plants were taken up, and set in larger boxes filled with soil, by means of the frame of poultry-netting shown in Chapter IX., so as to present about the appearance shown below.



A BOX OF WHITE-PLUME CELERY-PLANTS AS IT APPEARS WHEN FIRST TRANSPLANTED.

You will observe that there are 10 rows of

plants, and 30 plants in a row, so it took 25 boxes, with 300 plants to a box, to contain just what grew in one single seed-box. The engraver has done his job pretty well; but nothing can equal, to my mind, the sight of these 25 boxes when the sun comes through the fleecy clouds during some March day, and lights them up as they stand south of the factory in their respective beds. Of course, we put sash over them at night when we have freezing weather. Do you object because this costs money? The boxes cost us about 10 cts. apiece, and I think they could be furnished without any trouble for 8 cts. apiece, in the flat; and it is just fun to nail them up on stormy days or winter evenings. Each 3 x 6-ft. sash covers 4 of these boxes, giving a little room to spare, so as to handle them easily. Do you object to this transplanting as a great deal of trouble? With the poultry-netting frame, almost any boy or girl whom you could pick up will tease to do the work when once shown how, and I think the transplanting can be done in almost any neighborhood for 10 cts. a thousand. You can let the plants grow in these boxes until they make a perfect mat. If it is too early to set them out, cut off the tops with a pair of shears, and in a few days they will be all out green again. The clipping-off makes a stout, thrifty, strong root. When you want to plant them outdoors, carefully slip the box off from this mat, and cut it up into little squares with a long butcher-knife, as I have before mentioned. If all the neighbors who see them don't want these little plants, with their strong mass of roots, your community is different from ours. What do you suppose the 7500 will bring during nice showery weather in May or June? They ought to bring readily \$2.50 a thousand; or if sold in hundreds, 40 cts. a hundred. You will notice by the prices in the seed-catalogues, that they charge a great deal more—some of them going as high as \$10.00 a thousand for good strong celery-plants early in the season. Suppose, however, you do not sell the plants, but set them on good soil. At 5 cts. per stalk (and good celery rarely retails for less than this) your crop would bring you \$375. And this is all the proceeds of one little box of seeds.

The same thing may be done with cabbage-plants, and, to a certain extent, with lettuce-plants. We sold a barrel of heads of lettuce last week at 25 cts. per lb., giving us about \$8.00 for what grew on perhaps 8 feet square of ground in the greenhouse; so

the first crop from our greenhouse brought us 12½ cts. per square foot of ground. Well, when the lettuce was thinned out we put radishes between the rows, and the radishes are now selling for quite a little sum. After the lettuce was *all* out, tomato-plants were put between the radishes, and they are now making good growth, and will have all the ground as soon as they can use it. The ground in these beds was made perhaps one-fourth part stable manure. Guano was afterward dug in between the rows. In fact, it was manured up to the highest point, in order to have it bear continuous cropping; that is, we have the ground constantly full of roots, and the surface of the ground almost constantly covered with foliage of some kind. Instead of taking the crop entirely off, we take out every other row, and sometimes every other plant, and then some other plant goes right in between. You see, brains are needed in this work; and who does not feel happy to have his brains all employed in something useful? Sometimes people employ their brains and their waking moments in thinking of a quarrel with a neighbor. What a contrast! Well, I have told you what can be done with a little bit of ground in the way of lettuce and celery. When these get so they can go outdoors, we want to give the space under the glass to tomato-plants, and others of a tender nature. We are putting tomatoes now in the place of lettuce and radishes, and shall soon have our greenhouse almost entirely filled with tomatoes, while these other things grow outdoors. Now, in regard to what may be done with tomatoes, pushed along in advance of the season, I will let friend A. N. Cole, from his "Home on the Hillside," speak. Perhaps I should explain, before giving his letter, that our beds outdoors are warmed by letting the exhaust steam, after it has warmed our factory, go into those stone reservoirs, just above the water-line. The steam warms up the stones and the water, and the ground for several feet each side of these reservoirs, so much that it seldom freezes, unless the temperature goes pretty nearly to zero; and when it does freeze it is only a little crust over the top, which thaws out very quickly. With the aid of steam, it forms a veritable hot-bed. Well, I had corresponded with friend Cole in regard to this, and he alludes to it in the following letter:

RAISING TOMATOES BY THE NEW AGRICULTURE.

Dear Brother Root:—I confess to uneasiness in regard to tomato-plants. Mrs. Cole, by great pains-

taking, and with much of labor, aided by her husband, succeeded in setting upon our trenches, about the middle of May, the first of our plants in blossom, grown to a size in the bay-window, and "soul carting" the boxes day after day for two months on every warm day till acclimated, and "harvested" our first large, ripe tomato one week later than our great strawberry show; to wit, July 13th. At this date, tomatoes had found their way to our town from Charleston—pale, sickly-looking, and soft—*unfit, in fact*, for use, and yet finding ready sale at ten cents per pound, retail, costing our dealers 8 cents by the crate. Those from the Carolinas, as well as my own, were of the "Early Cluster" variety, earlier by two weeks than any other, and though least valuable in fact, nevertheless sold readily in all of the markets of our State, holding up to prices from eight to ten cents per pound at retail to about August 1st.

I think I am safe in saying, that millions of pounds of the Southern tomatoes were sold in this State alone during the last half of July. Here is where the oil cloth sold by Henderson will come in to good advantage. A skeleton frame of wood, consisting of stakes, open at top in the form of a clothes-pin, into which connecting-bars may be dropped, and pinned at their ends to prevent spreading, would give you a row of tomatoes ripening by slightest surface protection with the Henderson oil cloth in the months of May and June. You might need sash during February, but these could be above your skeleton frame; and so soon as the tomatoes are where cloth protection will do the work, the sash can be used elsewhere.

Perhaps the better way would be to protect by sash, exposing on every sunny day, till the blizzards have passed, and, when safe to do so, remove the sash and substitute the skeleton frame and oil cloth till all danger of frost is passed.

What I especially covet is about ten or twelve, or possibly a score, of "Early Cluster" plants, and a corresponding number of other varieties, to be supplied me as far advanced as possible, that I may set early, protect, and secure tomatoes as early as it is possible to realize ripe ones in this latitude.

I have had so much to do, and my resources have been so taxed in all ways, that your beginning has been a profound satisfaction. I propose to have all ready in the fall, to push the hot-water feature myself next winter. In the meantime, *your* success is something I am watching with all-absorbing interest. I feel very sure—yea, morally certain—that, if you will only buy good firm cotton cloth and dip it in oil, thereby making your own oil cloth, the protection will be found complete. Do not fail to provide me with the tomato and squash plants. I should like, also, a few very early and well-rooted cabbage-plants. Write me as often as you can.

Your friend, A. N. COLE.

HOME ON THE HILLSIDE,
Wellsville, N. Y., March 9, 1886.

I have given place to friend Cole's letter, because it shows us what may be done with large, strong, early tomato-plants. We have just sold off the crop of lettuce from our central bed in the greenhouse, where I got on too many ashes, and we are to-day, March 12, filling the bed with tomato-plants of the "Early Cluster" variety, having

their second pair of leaves well begun. We are setting the plants out with the poultry-netting frame, so as to have them come about 3 inches apart in the row, and rows 5 inches apart, for better opportunities for cultivation. The plants will stand here until they begin to crowd so much they demand extra room, and then we will remove them to the ground over the reservoirs, covering them as friend Cole suggests. We have had a good opportunity of testing the oil cloth furnished by Peter Henderson, but it is altogether too light to in any measure take the place of glass sash. I have, however, found an article that works splendidly, and gives perhaps as much protection as glass, but it does not give as much sunlight in the daytime. This material is strong cotton cloth, a grade that we term "Indian Head." It retails in the stores for about 7 or 8 cts. per yard. When we needed the glass sash for our newly transplanted celery and cabbage plants, the sash were taken from the cold frame as shown in Chapter X.; and in their place we substituted cotton cloth, as mentioned above. First we were greatly troubled by the wind, and I found it necessary to fasten a long strip of wood to the edge of the cloth on each side. The cloth was attached to the strip of wood securely by nailing a strip $\frac{3}{4} \times \frac{1}{4}$ along its whole length, with the cloth between the two pieces. Some similar strips were screwed up and down each gable end. We now had it secure, but the frost went right through it when the thermometer was down to 10°. It didn't answer in the place of glass at all. Finally I instructed our painter to give it a coat of boiled linseed oil. It took several days for this to dry, but the oil has filled the pores in the cloth so that it not only stops the wind and air, but it holds water; and down by the eaves we sometimes after a rain find a couple of pails of water where the cloth has sagged between the rafters. It now keeps out the frost about as well as glass; but we find it necessary to bank coarse manure along the sticks that hold the lower edge of the cloth. You will see, by turning to Chapter X., that this cold frame is 23½ feet long. Well, we found at the lumber-yard some long narrow boards, this length, perhaps 6 in. wide, to hold the edges of the cloth. Suppose, now, after a cold freezing night, we have a warm sunny day, and by 10 o'clock the plants would be better without any covering at all. The course manure is pushed from the stick on the south side, and a man at each end will read-

ily roll up this oil-cloth covering, and it is all out of the way in a minute or two. The frame may be covered and uncovered about as quickly as you would take off two of the glass sash. The expense of the cloth for this whole cold frame was only about \$2.25. Two gallons and a half of oil and three hours' time, would make about \$2.00 more, making about \$4.25; or say \$5.00 for sticks to roll it on, and all, while the 14 sash used to cover this same cold frame would be worth \$25.00 or \$30.00. I do not know how long this oil cloth will last; but it seems soft and pliable, and with care will doubtless last a great many years. Such a sheet is very valuable, many times, for thrashing grain or seeds. It is 4 yards wide and 8 yards long. Where we wish to get as much heat as possible from the sun's rays, I presume glass would be considerably better. But the air gets very hot through the oil cloth if the gable ends are not open promptly as soon as the sun has been out a little time. Another advantage in using cloth in place of glass is, that the heavy expense of breakage is avoided. We find it almost impossible to handle sash without breaking them

more or less. I have learned this pretty well: That it is never safe to set up sash on end or on edge. When you wish to lay them down, put them down flat. Unless you do, the wind may spring up unexpectedly, and flop them over; lay them down one upon another, so no wind can get under any edge or side, and they are safe. In Jersey City I noticed the sash were piled up at each end of the beds, one on top of another, so as to make a square true pile. Sash is oftentimes handled more than is really necessary. When the days are not very warm, the sash may be tilted or moved to one side, so as to let the hot air escape from underneath, without taking them entirely off. It is, however, dangerous to take risks in leaving the sash off when appearances indicate at night that there will be no freeze. Almost every season we have lost more or less plants by a sudden change during the night, when we did not expect it. Bear in mind, we are to make our money by having all sorts of garden stuff in advance of the market and everybody else, and it does not pay to take risks. We want to make a sure thing of the operation.

CHAPTER XII.

But when thou art bidden to a wedding, go and sit down in the lowest room; that when he that bade thee cometh, he may say unto thee, Friend, go up higher.—LUKE 14: 10.

SELLING YOUR PRODUCTS.

As soon as you have any thing fit for sale, it must be sold; and I am not sure but it requires more brains, more energy, and more perseverance, to sell stuff at a fair price, after you get it, than to raise it in the first place. Now, don't say you haven't any faculty for selling such produce. If you want to build up a business, you must oblige yourself to learn the trade of selling things; and it seems to me that the first and greatest essential to success is that you commence with love to God and love to your fellow-men. These pages are not written to people who are well to do in the world, but for those who are poor and needy. If you have plenty of business of your own, remember that, although these pages may interest you, they were not written for you. They were written for the man or woman who is out of work. And another thing, if you have any *false* ideas in your head in regard to respectability in earning an honest living, they must be gotten rid of.

When you get a lot of nice lettuce ready for the market, and there is no demand for it, you must *make* a demand. When the plants begin to crowd, take out every other row, and finally every other head; and if you have more than you want to plant somewhere else, or if they are too large for transplanting, you must sell them. With a sharp knife, cut them off just at the surface of the ground. Pull off the faded and untidy leaves, and rinse the others with clean water. If the heads weigh about a quarter of a pound each, they are all right to be sold for a nickel apiece; or if it is early in the season, say February, or if it is where there is a good market, heads weighing two ounces will often bring a nickel. If the plants are so crowded as to be small, tie them in little bunches to make two or four ounces, as the case may be. Put them in a neat clean basket, and start out among your neighbors to build up a trade. Will some one say, "I wonder if you think that *I* am going about

from house to house, to peddle lettuce, like some old market-woman?" My friend, I do expect you are going to do just that; that is, if you get help from these pages. See the text at the head of this chapter. If you are already in business, and have got started, and have a horse and wagon, all right; but I am considering now those who have nothing to do. You want a nice clean basket, and you want your bunches of lettuce tied up with some neat-looking string. Choose some color that does not soil easily. Wash your face and comb your hair; and may be you had better put on some clean shoes and clean clothes every time you go out to sell goods. A gardener is often necessarily pretty well covered with mud and dirt. When he sells stuff he must go into people's houses, therefore he wants to look reasonably becoming. Be civil and courteous, kind and neighborly, but don't waste time in useless gossip. Let your friends see by your movements that you have lots of business; and in this case I don't think it will be amiss in God's sight if you move about as if you *had* lots of business, even though you *haven't*. If you get into the habit of moving around spry, it won't be very long before there will be abundant need of economizing the minutes. Let your stuff do the talking as much as can be. Let everybody see what you have on hand, and tell them it is only a nickel. If it is muddy weather, be careful how you track mud on the clean steps or porches, or into the house. Work hard for the good of the people whom you meet, and let your face show by its expression, love to God and love to your fellow-men. Some radishes, white and red, tied up in bunches and put with the lettuce, will help to make your basket very attractive. Get out in the morning before breakfast with these things, if you can. If you can not get clear around, the next best time is before dinner. When the weather prevents your making your regular trip before noon, get around in the afternoon as quickly as possible. While you have a proper regard for your health, don't be too ready to give up on account of the weather. "He that observeth the wind shall not sow; and he that regardeth the clouds shall not reap." If you are going to be a successful gardener, you will soon learn to love to work out in the rain, if it does not rain too hard. Don't be troubled if sales are slow and small to start with. Do your duty, and trust God for the result. Many of our most wealthy men learned the secret of success in business in humbler callings than selling garden

stuff. As soon as you can get some nice onions in bunches, they will sell among a certain class of people.

Don't make a mistake, and sell your stuff too cheap. Last fall, when our first yellow rutabaga turnips began to be fit to use, we started them at 25 cts. a peck, which, you know, is \$1.00 a bushel. Well, the people got so much in the habit of paying that price for them, that we sold almost our whole product at a dollar a bushel. They were real nice, however, and that was the secret of it. Just as we were selling the last of them, farmers began to bring them to town, and sold them at 25 or 30 cts. a bushel. Now, had we commenced to offer them at 10 cts., instead of 25 cts. per peck, they would not have sold much faster, nor would people have been much better satisfied, probably. When you have secured a crop in advance of the season, don't be afraid to ask what it is worth, or what it will bring. Friend Cole speaks of 10 cts. per lb. for early tomatoes. If you can sell all you have raised, at 10 cts. per lb., that is positive proof that they are *worth* 10 cts. per lb. The products of the soil are always worth what they will bring. Strawberries are now quoted at \$6.00 a quart in New York; and if there are people in that city who are willing to pay that price, it is right for the man who raised them to get it. If it is too high, let somebody else compete with him, and bring the price down. The world is full of people who are watching for a good margin on any thing. If somebody else is selling garden stuff besides yourself, by all means have your relations with him of a friendly nature. Divide the town, if you choose; but whatever you do, don't cut against each other, and thus cut down prices. If there is not room enough for two, talk it over, and let one buy the other out; or let one take one line of goods, and the other one, another. Don't quarrel; and don't, under any circumstances, hurt each other's trade. When your trade increases sufficiently, have two baskets made so as to hold as much as possible, and so you can take one in each hand. If something like the old-fashioned neckyoke, with which our fathers used to carry water or maple sap will be a convenience, don't be ashamed to make use of it. It is honest and respectable to bear burdens. By no means cultivate oddity or eccentricity, but choose such things as are real helps to you in your business; and if people do smile when you commence work, they will soon get used to it when they find you are bent on a regular, steady business,

year in and year out. Nothing helps a man like sticking to his calling, as if he meant everybody to understand he meant it to be a life purpose with him. Meet your customers regularly, if possible, and in regular order. When the weather is suitable, a light wheelbarrow will be quite a help. Get up with the sun; work every hour in the day; and when you can not see to work outdoors, read the various periodicals devoted to your line of industry. Study books on gardening, which are now to be had by the score.

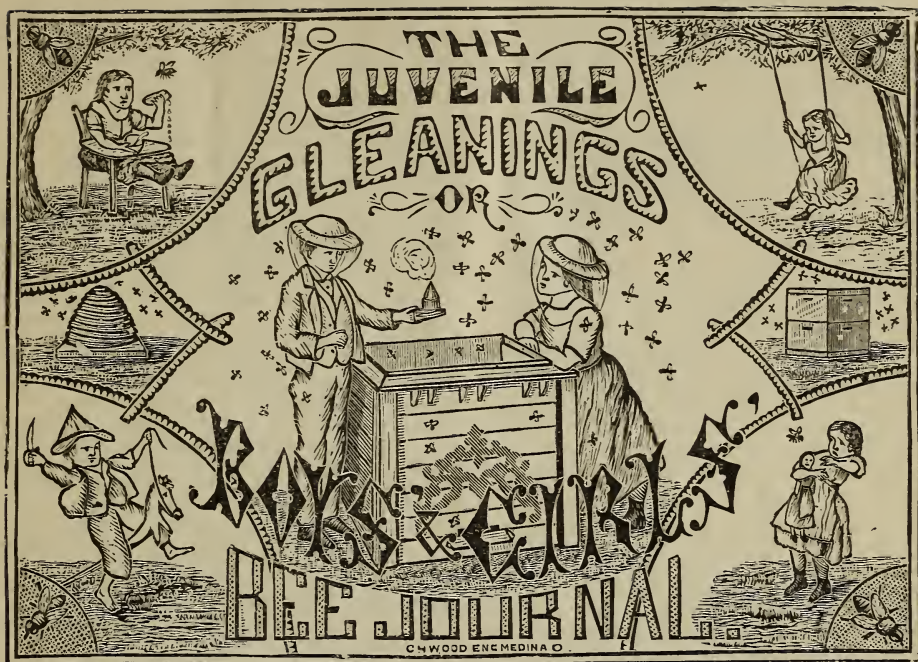
Pay as you go, and encourage your customers by every possible means in paying cash down. Always keep change in your pockets—enough to make change rapidly.

A great many people waste time and make blunders because they do not use the established plans of doing business. As an illustration: Suppose somebody takes a bunch of radishes and a bunch of lettuce, and gives you a half-dollar. Lay down the vegetables with one hand while you scoop the change from your pocket with the other hand. Then count this way: Lay the goods in the pan or on the table, or such place as is most convenient, counting as you drop them, "10 cts." Then take a dime from your handful of change and lay that beside them and call it "20 cts." Now put in a nickel, and say "25 cts.;" then put in a quarter, and say "50 cts.," counting out loud. You have the lady's half-dollar, and she has *her* 50 cts. in *goods* and *change* on the table or in the pan. You see, there is no subtracting by this method—it is just addition. She gave you a half-dollar, and you gave her half a dollar back, the vegetables making 10 cts. of her half-dollar. Make change this way all along, count out loud, then tell your customer to please see if it is right. Make everybody you deal with count after you, and express themselves satisfied; if you don't, you will have misunderstandings, contradictions, delays, and perplexities. The time-clerk in our establishment, when she pays the hands Saturday afternoon, has positive instructions to insist that every man count his money. Sometimes they grab it and push it in their pockets, all wadded up. She tells them her instructions are that every hand must count the money, and see if it is right. Two or three times they have neglected my instructions. For instance, a young man who had been recently employed, came to me saying that the time-clerk gave him a dollar too little, and

that she refused to make it good. She declared she gave him the dollar, and he counted it, and he said it was all right. He admitted this, but said he made a mistake when he counted the first time. After arguing the matter some, I directed that the dollar should be given him, to keep peace in the family. How do you suppose it turned out? When the room where he worked was swept out, the paper dollar was found in the shavings. The time occupied by the controversy and by different hands stopping to listen to the argument, and to hear each one's story about it, cost me, perhaps, something near the amount in question. The time-clerk was an old hand at the business, and was right. And it will generally be found so. The one who is familiar with his routine of business is not so apt to make mistakes as one who does not handle money very often. The largest amount of work can be accomplished in a day if you can do it so surely and accurately that you won't be hindered by accidents and misunderstandings. Have your wits all about you, and do every thing as if your life depended upon being accurate and quick. If you are a sleepy individual—one who is in the habit of sitting down in the sunshine, and yawning, and telling stories, and gossiping in the middle of the day, *I can not help you*. You will probably be poor all the days of your life, and unhappy besides. Why, it sometimes seems to me *awful* to see great stout men sitting still, or lounging around with their hands in their pockets, during these bright spring days.

Now, then, take a low seat and work hard till your fellow-men bid you sit up higher. Astonish your customers by the beautiful heads of lettuce—by strong thrifty plants of celery and cabbage—so strong that almost anybody can see that each one is sure for a crop, and have some great thrifty handsome tomato-plants ready just at the time when everybody will be wanting them. A good strong plant, well rooted, ought to be worth a nickel, giving your customers a pot to carry it in. The same general rules will apply to every thing you raise on your ground; and when you become an expert in producing nice plants in small beds, you can extend the same process to acres, working slowly and carefully, and increasing your area only so fast as you can do it and do your work well, according to the spirit of the text at the head of this chapter.

To be continued April 15, 1886.



He that is faithful in that which is least, is faithful also in much.—LUKE 16:10.

MYSELF AND MY NEIGHBORS.

Thou shalt neither vex a stranger, nor oppress him: for ye were strangers in the land of Egypt.—Ex. 22:21.

ONE day while I was sitting at my desk reading letters, I think it was about the middle of February, a stranger came up to me and asked for work.

Request has been made so many times during this past winter, that I have got into the habit of being perhaps a little short and a little positive in telling them I had no need of any more help. This man bore very plain evidences of belonging to the class called "tramps;" and one's first impressions were that he was an intemperate man. His clothes were ragged, and he was a pitiful-looking object. After I had told him positively that there was no possible chance, and that old hands had been waiting all winter for a place, he started off with a dejected look that touched my heart. He was quick and keen, however, for he glanced back, and, seeing that my eye was on him he turned around and approached again.

"Mr. Root, could you not give me some kind of work to do, to pay for some sort of an old coat? My coat is very ragged, as you see, and I should be very glad to pay in work for a better one. I don't want to beg; and if you will give me a chance, I think I can show you that I am willing to work for all I ask for."

The appeal was more than I could stand. I replied, "Why, yes, friend, I will give you

something to do, to pay for an old coat," and I set him at work piling green bass-wood plank. Perhaps I need not tell you that this was a job that the average tramp would soon slip out of. But our friend didn't slip out of anything. He took hold and worked so well that the men with whom he was working wished me to let him keep on a while. I asked his name, and told him that, if he worked as well as he had so far done, we could probably use him for a week or two, provided he could comply with the conditions of our establishment.

"Mr. Lewis, am I right in judging that you are or have been a drinking man?"

"Mr. Root, you have been very kind to me, and I will tell you the truth. I do get on a spree occasionally."

"Well, my friend, you probably use tobacco."

"Why, Mr. Root, I do when I can get it; but I have been so very low down lately, that I have not had any money to buy it."

"Well, now, perhaps you won't like to work for us when I tell you that we employ no man who uses whisky or tobacco in any form. If you think, however, it would be a good thing to break off all these things, and try to be a temperate and upright man before God and your fellow-men, we shall be glad to have you stay."

He promised to try it, and said he had worked at places before where they had the same rules. When I suggested that he lost his place by his habit getting the better of him, he acknowledged it. Sunday after-

noon I called at the place where he lodged, and asked to go up into his room. I had before urged him to come to meeting. What do you think I found him doing? He was working slowly and painfully with needle and thread, trying to darn up his old coat so it would be fit to go to meeting after dark. He looked up at me with a frank, honest look, that I think was truly genuine, remarking, "Mr. Root, now may be I a'n't doing just the right thing, to mend my old clothes on Sunday; but I do it solely that I may be a little more presentable at meeting to-night. If you think I am wrong, I will stop it in a minute."

I replied at once, "No, no, my good friend, go on with your mending. It is all right, I am sure, in the sight of God; but while you work I want to talk with you a little."

I had won his confidence, and he told me of a wife and two children in England. They did not use him well, and he had come away off across the ocean. I suggested that it was on account of drink, and he finally admitted that perhaps it was. He had had good situations as stone-cutter, and had earned good wages; but he always lost one place after another, sooner or later; and when I found him he had spent one night in the infirmary, and then started out again in the cold wintry weather, to find some place where he might work until whisky should cast him out again. I held up before him the cross of Christ, and the Bible promises. When I asked him to kneel with me he replied, "Most certainly, Mr. Root," and quickly got down by my side while I prayed for him and others like him. The tears ran down his cheeks; and although he didn't promise much, he gave as sure evidences to me as I think I have ever seen, that he was truly penitent. He attended our Murphy temperance meetings, and went about, day and night, with a blue ribbon on his coat. I told the story to some friends, about his darning his old coat that Sunday afternoon, and we soon furnished him quite a respectable drab coat and vest, which were given him without any charge. He seemed very grateful, and was, to all appearance, as honest and faithful as a man could be.

Last Friday morning, March 5, one after another told me that Mr. Lewis had broken his pledge, and was too drunk to be talked to. In the afternoon and evening, four or five of our young Christians—yes, and some old ones too—hunted him up and tried to reason with him. Of course, our frank, honest, faithful friend was gone. Another light blazed from his eyes, and another spirit had possession of his faculties. He seemed possessed of a devil, as we read about in the Scriptures, in olden times. Saturday afternoon, after I came home from church, I was told he wanted to see me. I knew what the matter was, for I had told the time-clerk not to pay him wages while he was intoxicated. He demanded his pay. As I knew it would be used for buying more whisky, I objected. I finally told him in plain terms why I could not pay him his money. I asked him if he would tell me where he got the where-with to get drink. At this remark it seemed as if Satan himself blazed forth from his

eyes, as he refused to tell; and he added something like this: "Mr. Root, if you think you can keep back my pay, just try it on." And then he turned on another strain, and begged piteously for even two dollars, and prayed for Heaven's blessing to come down upon me if I would grant his request. I told him I would give him all his pay if he would promise me, even while he was intoxicated, not to drink any between then and Monday morning, and then come to me. He objected, and argued; and I believe now the man is truthful when in his right mind, and, that even while intoxicated, it was a hard matter for him to break his word. At length he gave me the promise and got all his money, except his board-bill, which the landlord where he boarded asked me to keep back. As I gave him the money, I asked one of the girls to bring me a good long piece of blue ribbon, and I tied it in the button-hole of the coat we had given him, hoping it might help him, and help the saloon-keepers to keep temptation out of his way. He went away pleasant and good natured, thanking us all. Had I done all that a Christian ought to do, according to Bible precepts, for the stranger that came to our gates? I had tried my weak hand in coping with Satan and the powers of darkness; and although it had amounted to but little or nothing, I felt that I had done the best I knew how, according to the best of my poor wisdom. For the sequel to this sad little story, see Our Homes, in this issue.

A SWARM BECOMES ENRAGED, AND MAKES A FURIOUS ATTACK.

DURING WHICH HALF THE BEES LOST THEIR STINGS AND THEN LIVED THREE WEEKS.

ON page 70, 1886, Ernest asks: "Does any juvenile, or anybody else, know of such a case, as that a bee lived two days or after?" Well, I once had a swarm of bees whose queen I bought of a man by the name of Good, somewhere in the State of New York, in the year 1868. I bought her for a pure-blood Italian queen; and though her bees were most beautifully marked, I have often thought they might be mixed with the Egyptian variety, on account of their inveterate hostility when they swarmed. They were not very ill to handle at other times; but when they swarmed they would hunt everybody and every thing—dogs, cats, horses, and chickens, and sting them with vengeance. On one occasion I was sitting in the door of my residence and saw them commence to swarm. I got up immediately and started to get a hive; but by the time I was half a dozen steps from the door they

ATTACKED ME IN GREAT NUMBERS.

I then returned to the house and procured a bee-hat, and gloves with long gauntlets; and having donned the aforesaid bee-apparel, I again sallied forth and was met by thousands of infuriated bees which stung me through my shirt, and stung my gloves and left their stings so thick on my gloves and hat that you could not touch them with the end of your index finger without putting your finger on a sting. I did not count them, but I am satisfied that two thousand would not cover the

number. An Irishman came to me at the time, and was stung in like manner. When he first made his presence known I said to him, "Tom, you had better go to the house; these bees will sting you to death."

"Oh, no; the leetle fellows would na hurt a body;" but about that time I heard him cry out, "Och! houly Moses!" I then looked around, and he was walking off slowly, scraping them off by the handful, first with one hand and then the other.

In one hour after they were snugly hived, they were as tame and submissive as before they swarmed. I observed them closely every day for two or three weeks. At first there appeared to be nearly or quite as many stingless bees at work as those unharmed by the loss of their stings. I am satisfied that some of those

STINGLESS BEES LIVED AT LEAST THREE WEEKS. But what was most remarkable, I at that time kept a trough in a convenient place filled with urine, and in which about half a teacupful of salt was dissolved; and on the next day after the swarm came out I happened to pass this trough of stink-bait, and was surprised to see great numbers, perhaps a quart, of these stingless bees sucking at the stink-bait. I afterward went nearly every day to see and watch or observe how long they would go to it, and found them there in great numbers, gradually decreasing every day for some three weeks; so I am satisfied that a bee, if left at liberty, will live about or nearly as long after losing his sting as he would otherwise have lived.

Further, I was once put on a committee, with two or three other gentlemen, to investigate this matter. I took a small nucleus hive, only some $4 \times 3 \times 5$ in. deep, filled with comb honey and some eggs and a young queen, and about 100 stingless bees, and moved them $1\frac{1}{2}$ miles. They lived till some of the brood hatched to take their place, but I think salty stink-bait, or some other medicine, is actually necessary to their existence. JOHN L. GREGG.

Tempe, A. T., Feb. 2, 1886.

You have given us some very valuable facts indeed, friend G., that bees, after the loss of their stings, if allowed their liberty, have lived and gathered honey for some time afterward. Your experiments seem almost conclusive, that the loss of the sting does not materially shorten the lives of the bees, providing they are allowed their liberty. It seems to make considerable difference whether these stingless bees are confined, or given their freedom. I have found, however, by experiments recently, that single bees, without any bodily injury, will live four or five days, and even a week; but that a dozen or so together will survive sometimes three weeks. If the juveniles had caged their stingless victims with other bees, their reports would probably have not conflicted with yours; at any rate, their stingless bees would probably have lived longer. —You will notice that your conclusions in regard to salt and other like deposits are in line with the suggestions expressed by friend Greer, on p. 178 of last issue. As to whether the salt had any curative properties upon the bees above alluded to, might be a question. Has any one had an experience similar to the facts as given by friend G.? One or two more such would settle this problem of stingless bees.

ERNEST.



Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from \$1.00 to \$1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: Sheer Off, The Giant-Killer, The Roby Family, Rescued from Egypt, and Ten Nights in a Bar-Room. We have also Our Homes, Part I, and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, taken a great many years ago. In it is a picture of myself, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

"A chiel's amang ye takin' notes;
An' faith, he'll prent it."

HONEY AS A REMEDY FOR COLDS.

I HAVE a question that I wish to ask the mammas, and the little folks are to do the reporting in GLEANINGS. Much has been said in praise of honey as a remedy for coughs, croup, and sore throats. The question, then, or problem, if you choose, is this: Is honey a valuable and effective remedy for colds? or are its supposed curative properties a mere whim? During the month of March, when colds of all kinds are so frequent among our little folks, and older ones too, there will be a good opportunity to make a careful test. Perhaps many of our mammas are already satisfied in their own minds. From my own observation, California honey will seemingly check or stop a hard cough, when basswood honey has no effect. I want the juveniles to report, also, what kind of honey seems to be better than others for colds. Does California honey seem to have special virtue in its curative properties? Let us have no guess-work; but if honey is a valuable remedy for colds, as is the general impression, then we surely ought to know it. To illustrate the difficulty of deciding correctly in this matter, pardon me for telling you a little incident of my short married life. Now, I haven't any Huber of my own from whom to draw my illustration, but we have a little nephew, Arthur, staying with us. One night he had the croup, and neither myself nor my wife knew what to do; so we just stood and looked at him, while trying in vain to remember what our mas had done when we were little and had the croup. We had plenty of honey in the house, but we never thought of that. Finally, Mrs. R. said she had seen somewhere, that they gave ground cheese-rinds and hot water. This she quickly prepared and gave him. Under the seeming stimulus of this dose he got better. If

we had given him honey, and the results had been the same, we might have thought there was great virtue in honey. At another time when he had the croup, we gave him nothing, and by morning he was better. In the first place, supposing we had given him no dose, what would have been the result? Our mammas will see the difficulty of deciding whether a certain remedy does or does not prove effective. Repeated trials, however, as doubtless mothers have had, will very likely decide pretty closely. How many reports shall we have next month, for or against the curative properties of honey? This is a matter upon which, with the help of your mammas, many of you can report.

ERNEST.

"HONEY-DEW A GREAT HELP."

We children watch the bees gather honey from the clover-blossoms. Pa says honey-dew is a great help to them. I was in the yard last summer, and a bee stung me on my foot.

Smithville, Mo. HARDY and NELLIE JENKINS.

BEEES IN OREGON.

My father and the boys have 73 stands of bees and I have two. Last winter it was snowing the day after Christmas, and this year it was sunshiny. The bees were flying on the 26th of December. I like bees, but I do not like honey.

Harmony, Oregon. HESTER RUSK, age 10.

DO THE LARVÆ ABSORB OR EAT THEIR FOOD?

My pa has 50 swarms of bees, and has them in winter quarters. I have a little brother four years old. I am interested in bees, and I want to ask a question. Do young bees eat in the cell, or do they absorb the food? Why do they turn their head from the food.

NICHOLAS JONES, age 13.

Delaware, Ohio.

I consider your question in the department of Our Own Apiary, which see.

ERNEST.

WHITE HONEY IN A BEE-TREE.

My uncle, F. H. Gorton, is a bee-hunter, and he found a tree on our place with nearly 50 lbs. of nice-flavored honey, and all white comb, arranged up and down in the tree as nicely as he ever saw in a hive. He says he never saw any like it before, and he has dealt in bees always.

MAUDIE H. MORENUS.

Sherburne, Chenango Co., N. Y.

HOW PHEBE GOT HER THUMB STUNG.

I tried to make my bee sting a piece of cloth, but it stung my thumb, at 12 minutes after 11 o'clock in the morning. Mother put it in a cage, and I gave it some honey. It died some time in the night. The next day I tried another bee. It lived 7 hours. It looked like an old bee when we got it. I can not write much, because I could not go to school last summer, so mother is writing for me. I can do a good many things to help her, through.

Whitby, Ont., Dec. 28, 1885.

PHEBE ORVIS.

A BEE LIVES 58 HOURS CAGED ALONE.

We got our bees on Christmas morning. Mine stung me on my wrist at five minutes past ten. It lived 58 hours. We had two bees left when we got through, and we put them in a cage together. They went to fighting at once, and lived one hour and ten minutes. I saw through the microscope a

drop of poison on the end of a sting. We had about 3000 lbs. of honey last season. We have two colts. One of them will follow me around when it wants any thing.

SPENCER ORVIS, age 10.

Whitby, Ont.

We now have record of a bee living 58 hours or nearly two days and a half. Next time you try, cage with other bees.

ERNEST.

WATCHING THE TOES OF THE LITTLE BEES.

I wanted a bee too, so Spencer helped me, and made one sting a piece of cloth at 22 minutes past 11 o'clock, and it lived till 9 o'clock the next morning. I saw it put its toes around the wire of its cage to hold on when it walked. I have a slate and book, but I can not write, so mother has written this for me.

BERTHA ORVIS, age 5.

Whitby, Ont.

It is real funny to see the bees' little feet trip over the wire in the cage, is it not?

ERNEST.

IS PACKING IN WINTER NECESSARY?

One year ago last fall my pa had 9 swarms of bees, and my sister had 2 that my pa's cousin gave her. Pa packed them all but two—one of my sister's, and one of his own. His cousin said that they would do better without packing, but pa thought not; but seeing that he gave my sister the bees, pa left one of them out, and one of his. Both of them died, and two more besides. The bees died all around us last winter very badly. We have now increased them to 19, and have them all packed. We use the Simplicity hive.

LOUISA E. GREEN, age 11.

Lyons, Ohio, Feb. 3, 1886.

Thank you, friend Louisa, for the facts you give. Then you think it does not pay to leave bees on their summer stands during winter without being packed, do you?

ERNEST.

SOMETHING ON BEE-STINGS, FROM AN OLD BOY.

I see by the last issue of GLEANINGS that the bee-sting business is not yet settled. Well, little boys and girls, I will tell you what I know about it, and what I don't know. Several years ago, while working in the woodshed, I saw a bee hovering about an old piece of comb that had carelessly been left there, and I noticed at once that she had lost her sting; but, for fear that I might be mistaken, I caught her and made a careful examination, and am entirely satisfied that she had no sting, although she appeared to be in splendid health, and as lively as a whole bee. I do not know what she was looking for, but suppose it was for honey. But now the question arises, How long was she stingless? That's what I don't know; but from all appearances, she had been so for several days.

I want to say to Emma Jansen, that I also have at least one carp that does not bury itself in the mud in winter. I can see it almost every day, as I have it in a small pond by itself. I am a small boy of 26 years, and weigh 155 pounds—small compared with some others.

HENRY.

Your observation is in line with friend Gregg's article in another column, and I think it is quite likely the bee you mention had been without its sting for some days. On the other hand it seems to be pretty well established that, the stingless bees will not live long when confined.

ERNEST.

THE HONEY-PLANTS OF GEORGIA, AND HOW SOON THE BEES BEGIN TO WORK THERE.

There are lots of honey-bearing trees and plants here. Among them are the honey-locust, persimmon, black gum, sourwood, and others. The cotton plant produces some honey.

Bees begin to bring in pollen from the 10th to the 15th of February. Our bees are in good condition, with plenty of honey. We had lots of cold weather last fall. The thermometer has been down to 16 above zero, and as many as three mornings together, below 20. FLORENCE E. KELLEY, age 12.

Harmony Grove, Ga.

SHALL WE SELL HONEY TO SALOON-KEEPERS?

Raising bees has been very profitable to my father. Unfortunately, he has to sell most of his honey to bar-rooms. Well, I suppose they might just as well use honey as sugar. There is no law to prevent the use of liquor. My father has 64 hives. No one in the neighborhood has as many.

LOU FRIEND, age 13.

Chester, Va., Feb. 8, 1886.

Friend Lou, there is a moral point involved in your letter. Of course, I would not dictate for your father, but I think I would sell the saloonists none of my honey, providing they intended it for use in their traffic. If they intend it for an honest purpose, I do not know that I should hesitate to sell them all the honey they wanted. ERNEST.

HOW THE CHROMOS AS PRIZES ARE APPRECIATED.

I received a lovely panel chromo from you; many thanks for it. Brother Fred has his bees packed. He has the hives set in big boxes, and chaff around the hives. He has a house-apiary. I like to work with bees, but do not like honey. The first swarm Fred ever had, he had in a box hive, and soon he sent and got one of the Simplicity hives, and transferred them into it. He likes the Simplicity better than any other style of hive.

Woodstock, Ohio. NETTIE H. CRANSTON, age 11.

CATCHING SWARMS IN HIVES TIED TO A TREE.

My papa has 10 stands of bees, and loves to work with them. I will tell you how he caught three good swarms. He took the stands that other bees had died in, and which had old comb in, and tied them up in trees, and the bees went into them. Papa lost one good stand of bees which had 17 lbs. of honey. He thinks they froze to death. New Orleans sugar is very good to feed them in winter.

Smithville, Mo.

ESTELLA JENKINS.

Thank you, little friend, for the item that you give. If you could get the bees to go into the hives thus prepared, and the hives could be raised or lowered easily, it would be a capital plan for catching swarms; but I should be afraid that the bees would not always go where we wanted them.

ERNEST.

A JOB AT FEEDING SECTIONS; HOW TO PACK HIVES FOR WINTER.

Pa has a lot of bees which were flying about two weeks ago, all living and doing well. Pa has about completed a new building, and machinery for making hives and one-piece sections. When school is out, my pa offered me a job to feed the section-sander with buckeye sections. I like to see them come through on the other side. They look beauti-

ful and white. Pa has promised to let me pull the rope for the first time on the big engine-whistle that is now in the new building. In the fall, coming on winter, we took fence boards and stakes. We drove the stakes along in a row close to the hives, and set the hives close together. Then we took clover straw and put it in between the hives behind, and boarded the whole around the outside.

Ada, O., Feb. 22, 1886.

RAY MURRAY.

BEE-KEEPING IN FAR-AWAY IRELAND, AS REPORTED BY A JUVENILE.

Father has given me leave to write you about his bees. He was in America for some time, and came home twelve months ago, and commenced bee-keeping about April, by buying eleven straw hives of bees, and he drove them out and put them and combs into wooden hives, what he calls eight-frame Langstroth hives. He has twenty of them now. There is nothing but straw hives about here, and all black bees. Father has had several Italians from America, but the most of them were dead. He has six living; they were about 14 days coming. He got three on November 30, but two of them were dead.

There was a great buzzing in swarming time. Father clips the queen's wings, and when a swarm goes off he catches the queen and puts her into a cage and moves the old hive away and puts the new one in its place, into which the swarm goes when they miss the queen. He then lets the queen in with them, and puts the hive in its place, and the old one back. It is very nice to see them rushing into the hive.

Last season was good for honey, but father did not get much. He says he was too late in starting.

We have hardly any winter here at any time. Primroses, wall-flowers, etc., are out in bloom now, and every thing is looking very green; but we have a great deal of rain at all seasons, which father thinks will be a great drawback to successful bee-keeping in this country; but he is going to keep nothing but Italians, as he thinks they are the best. They are a very pretty bee, and I like them, for they seem quiet, and do not sting so much as the black ones. Father gave me a swarm which he took out of a chimney where it had been for some time. My sister has a hive too. The swarm came from somewhere, and settled on a bush close to the other bees, and father put it into a hive and gave it to her and we are very much pleased with them.

CHARLOTTE R. TURNER, age 10.

Revlín House, Donegal, Ireland, Jan. 6, 1886.

FROM 25 TO 51, AND 2900 LBS. OF HONEY; REPORTED BY A JUVENILE.

My father wintered 25 colonies during the winter of 1885, and they increased to 51. He took off 2900 lbs. of comb honey, and last fall he doubled them back to 45. He has seven of them out of doors, and the rest in the cellar. Father makes his own hives and sections. He uses the Langstroth Simplicity hive. He is going to make about 5000 sections this winter. He is going to give me ten cents a hundred for all I nail together. Father takes GLEANINGS, and thinks it is a good paper. I claim the Juvenile Department, and I like to read the letters. I have one colony of bees. They made me 100 boxes of honey. I like to help father among the bees, but I don't like to have the bees sting me. I got stung six times at one time last summer. Father went up

to Skowhegan this year to the bee-convention, and he saw Mr. J. B. Mason and sons of Mechanic Falls, Me. I can't think of any more this time.

GEORGE F. GREELY, age 13.

Clinton, Maine, Jan. 31, 1886.

Thank you, friend George, for your very full report. I judge that you take considerable interest in your father's work. When fathers can get good substantial help from their boys, they can expect to attain some degree of success, as did your father. You say you "can't think of any more." It is not long letters so much we want, but it is a good deal in a little space, and I think you have succeeded pretty well. We should like to have you report in regard to your father's bees next season.

ERNEST.

STRONG SWARMS READY FOR THE FIRST FLOW OF HONEY.

Mrs. L. Harrison sent me a colony of pure Italians. They were weak when they came, and we built them up with other brood; when they got strong we made an artificial swarm, and then they built up very strong with plenty of stores, but no surplus. Those that had strong swarms early for the first flow of white clover were all that got any surplus in this section of country. Auntie L. sent me an A B C book, about the same time she sent the bees.

WILLIE SIMONTON.

Memphis, Mo.

CARP, SWEET-POTATO VINES BLOOMING, ETC.

Pa has between 65 and 70 carp minnows, and they eat a piece of bread as large as my hand, every night. They eat more at night than in the daytime. Grandma's sweet potatoes bloomed last summer. The reason I speak of them, is because I have seen inquiries in the papers as to whether the sweet potato vine blooms. Ma says that there would be as many as twelve blooms on a vine not more than two feet long. She says that she has heard of but one other instance where they bloomed so profusely, and that was at a neighbor's a few years ago.

I received Ten Nights in a Bar-Room, and read it with great interest, as did all the family, and I loaned it to a neighbor, and she loaned it to another neighbor; and as most of the neighborhood favor dram-drinking, I hope it may do some good while away from home.

What would it cost to send a few beechnuts in the burr, for seeds? I have never seen any, as they do not grow here; but I have heard pa and ma speak of them, and I should like to see some.

AMY I. HOLLEMAN, age 11.

Wager, Benton Co., Ark., Feb. 14, 1886.

We did not succeed in getting any carp minnows last year from our carp-pond. As about a dozen large mud-turtles had succeeded in getting into the pond, we rather thought they had eaten all the spawn, or fish-eggs. We had been in the habit of feeding the carp crackers toward evening, and by and by the mud-turtles learned the trick of grabbing the crackers too. A casual observer would hardly notice this sly movement of the turtles, but a little close watching shows how nicely they can gobble up the fragments that are thrown out. I determined that I would shoot every one of them if possible, and accordingly on the 4th of July last, with rifle in hand, as soon as one stuck his nose out of the muddy water, I let fly a

bullet, knocking said nose, head, and neck, into—well, you know what, boys. In this way I disposed of over a dozen, and, so far as I know, we have not been troubled since. If any one is annoyed by these in his pond, I know of no better way to get rid of them.

In regard to the beechnuts, Amy, you can get some relative, where they grow, to send you some. The postage will be one cent an ounce, and for 10 cents postage you can probably get all you need.

ERNEST.

GOING OUT OF THE BUSINESS—HONEY TOO CHEAP.

Noticing that you wanted the juveniles to send in reports about how long a bee would live without a sting, I thought I would send mine. A few days ago when the bees were having a fly, ma was in the bee-yard about ten minutes. When she came in there was a bee on her back that had just lost his sting. I took care of him, and, counting the ten minutes ma was in the bee-yard, he lived just three hours. Pa has 32 swarms of bees. He has lost one nucleus this winter. The rest are doing well. Last spring ma was in Blasted Hopes, but pa said we would try again. Last summer the bees did very well. Pa says he is going out of the business, because honey is too cheap to eat.

CORA SNYDER.

Corey, Mich.

Friend Cora, we are sorry to hear that your papa is going out of the business because "honey is too cheap." Ought we not to rejoice that there are hundreds who can now enjoy one of God's choicest sweets, where they could not before when honey was 25 and 30 cts. a pound? Perhaps the false statements that you have been reading about may have had something to do with making "honey cheap;" but we have good reason to think that people will soon learn the true source of honey. Again, there are thousands of people who hardly know what honey is. Let us stir ourselves, and help papa to sell the honey around home instead of sending the whole lot to the city, where honey is hardly wanted at any price. Don't you see that the more honey we send into the city, where the sale is slow, the lower the price will be there? Let us see how many uses we can make of honey; and when the city folks are willing to pay a fair price, we will send it to them. At the head of this department you will see what I say about honey as a medicine for coughs and croup. Now, perhaps the very cheapness of honey will so introduce it to the people that they will conclude they must have it, and the price will then rise accordingly. No, friend Cora, don't let your father give up the business yet.

ERNEST.

HOW MANY BUMBLE-BEES ARE THERE IN THE AVERAGE SWARM?

My pa bought some bees in a soap-box, and GLEANINGS told him how to transfer them; but he forgot that he was ticklish about the knees. The bees found that out, and, well, pa will now wear garters outside his pants near his shoes. I like to frolic with the bumble-bees. I read the piece about juggling the rogues. I used to pour hot water in their ground-nests. Last summer I found a nest in the front yard, and, in the cause of science, to find out the number of bees in a nest I borrowed ma's round wire fly-trap with a tin top. I made the

hole in the cone a little larger, and set it over the hole in the ground just at dark. Next day I caught 160 bumble-bees. The next nest I caught 171. The next nest I caught 47, but they were whoppers, with yellow muffers on.

We have a judge in our town whom we call the bumble-bee judge, because he for a little money tried to defend a black man found killing turtle-doves, and the judge wanted the witness to say that the man was just chasing bumble-bees. The black man is now in State prison for another crime, and the judge goes to Utah, Warren Co., Ill., sometimes, to draw a big salary. HADLEY RENSCHAW, age 12.

Terre Haute, Ind."

Thank you, friend Hadley, for the facts you bring out in regard to the bumble-bees. I used to rob their nests sometimes, but I had no idea there were so many. Did you find very much honey in the largest nest? Aside from the fun, I never thought the amount of honey paid me for the trouble. Altogether, I do not know but that it is rather cruel to rob their nests, if fun is the only object; of course, they may build their nests where it is desirable to get them out.—Your fly-trap is similar in principle, if I mistake not, to the Alley drone-trap; and it is possible that our friend may have got his idea of the wire cone from this fly-trap.

ERNEST.

FIVE CENTS FOR REPORTING EVERY SWARM THAT COMES OUT.

A year ago this winter papa lost almost all of his bees. When spring came he had but 37 colonies left out of 79. From these we got only 1300 lbs. of honey—600 lbs. comb honey, 700 lbs. of extracted honey. He has kept some bees down cellar this winter, and some days it was so cold he had to have a fire down there. When papa had to work in the field he told me if I would watch the bees he would give me five cents for every swarm I saw coming out; so when I saw them coming I would run and call him, and he would come and hive them. I go to school every day. I have language lessons, and in that way I have learned to write letters. Last month my average on examination was 94½, the highest of any in school.

MABEL EMMONS, age 8.

Tampico, Ill.

I heartily indorse your father's plan of giving you five cents for every swarm you saw coming out. Even when I was quite small, "my pa" generally rewarded me in some such way for little services that I was able to render. As mice sometimes made destructive work with combs stored away for the winter, I was allowed five cents for every mouse I caught. Each additional five cents gave me a new impetus for ridding the barn of the "pesky varmints." As we lived in town, it was my allotted task to pile wood and hoe the garden—two things that I detested above every thing else. One day father said to me, "If you will hoe that garden so that I can not find a teacupful of weeds, I will give you a croquet set." All at once I took keen pleasure in "seeing things grow." I was up in the morning, and at work again at it after school; and when by the sweat of my brow I had a clean and handsome garden, with what pleasure I showed father and mother what I had done. The result was that we had an abundance of

vegetables of all kinds. Why, I believe I enjoyed that garden more than the croquet set which I obtained afterward. It pays every time to reward children with some small gift; and it need not necessarily be a croquet set either. Piling wood, hoeing in the garden, helping papa to extract, will thus become keen enjoyment, where before it was any thing but pleasure. ERNEST.

"HUBER AND HIS PA" AS THEY APPEAR EVERY DAY AT HOME AND IN THE FACTORY.

Yesterday, in GLEANINGS, I saw in the picture of your greenhouse, a man and a boy. Are they Huber and his pa? I should like to know. Pa takes GLEANINGS, and we like it very much. Ma thinks it is interesting to read in Our Homes.

SYLVESTER Z. PAULUS.

Stone Creek, Tus. Co., O., Feb. 23, 1886.

Yes, friend Sylvester, "Huber and his pa" stand near the greenhouse in the picture. If you turn to the editorial column of the same issue you will see that the picture is there explained. Of father, if the engraving is held at arm's length, it is a very correct likeness as he appears every day in the factory and on the grounds. He is somewhat bald-headed, you know, so he has to wear a heavy fur cap in winter, such as you see on his head. Occasionally something comes up that "needs to be seen to right away." Often it takes me a good while to find him, and sometimes after a search in vain through the various departments of our factory, as a last resort, I take a look from one of the upstairs windows, and away to the other end of the honey-farm, very likely, I catch a glimpse of that identical hat and its possessor, possibly emerging from a piece of sweet corn, or from a ditch where an underdrain is being put through. After he has been reading letters he gets tired (for he has not the endurance that he once had), and for recreation he busies himself in the garden where, perhaps you are aware, he finds keen enjoyment. Well, during week days he doesn't change his general appearance as seen in the picture very much, except once in a good while he gets "awful" muddy; and as he resumes his letters, you would hardly take him to be the boss of over one hundred hands. Huber's mamma sometimes has to give him a good talking-to for being so careless; but when he has been digging in a muddy ditch, and thereafter returns to the letters, it is not easy to maintain the same appearance always. You know how it goes, boys, from the playground to the schoolroom.

As to Huber, I do not think the picture represents him very well. It is a difficult matter for the engraver to correctly represent a child's features. Huber is quite fond of following his pa out on these excursions on the farm. Lately he has taken a great liking to watch the men work at their various machines—at one time in the wood-working department, at another in the machine room. Once we caught him walking under the belt of the great fly-wheel of the engine. We have told him he musn't go there any more, for it would "make the b'ood come" if he did. This is the only way we can explain the terrible consequences. He has been very careful lately. ERNEST.

TOBACCO COLUMN.

I UNDERSTAND you offer any man who will stop using tobacco, a smoker. Well, I will comply with those terms. I make you the regular promise, if I ever commence smoking tobacco again, I will pay for the smoker.

Glenwood, Pa., Oct. 17, 1885. C. D. BENNETT.

You said you would send any one a smoker who would stop using tobacco. I stopped chewing one year ago, and went to smoking. Since last May I have not used it in any shape. If you see fit you can send me a smoker. If I commence using the weed again I will pay you all you ask for your smoker.

L. F. COUSINS.

Utica, Pa., Dec. 28, 1885.

I received my watch a few days ago in good order; but last night I hung it up and when I got up this morning I found the crystal broken, from some unknown cause. I suppose the glue must have frozen and caused it to break. If you will send me a new crystal, I will promise to quit using tobacco.

CHARLIE HARRISON.

Collinsburg, Bossier Parish, La., Feb. 1, 1886.

I notice that you will give a smoker to all who stop using tobacco; and as I have been using it, I think I can stop for a smoker. I have two colonies of blacks, which I expect to Italianize in the spring. It is agreed, that I pay you for the smoker and the postage, if I ever use a crumb of tobacco again.

Rockingham, Va. W. O. ROUDABUSH.

A NEIGHBOR HAS QUIT.

I have 24 stands of bees, but I think they are poor pay in this county. I never use tobacco. My neighbor, however, has a few bees, and has lately quit the use of tobacco. He asked me to write to you to send him a smoker. His name is H. L. Revely. Since he quit the use of tobacco I think he is a nice man. If he is ever guilty of using it again I will see that you get your pay for the smoker.

Austin, Lonoke Co., Ark. E. M. BARGER.

ONE WHO HAS USED THE WEED 15 YEARS.

I notice from GLEANINGS, a copy of which was loaned me by a friend, that you offer free to any one who will give up the use of tobacco, one of your smokers. I have used tobacco for fifteen years, and at one time was an inveterate smoker; but I have given it up; and if you feel inclined to send me a smoker I shall feel grateful; and should I again take up the use of tobacco I agree to remit you the usual price of a smoker.

Boyce, La., Nov. 22, 1885. W. P. BRADFORD.

MIXING BUSINESS AND RELIGION.

I am very much pleased with the Christian tone of your magazine; and as to mixing religion with business, I say the more the better; and there must be something wrong with the business that is ashamed or afraid of religion.

I might say something in regard to using and selling tobacco—the Lord saved me from using it several years ago, and the clear light revealed that it was as great an evil to sell as to use it. I find it is just as easy to do a *clean* business, as any other, and much more in accord with a clear conscience and Bible truth. There is victory for every slave to the habit, in Jesus' name.

J. E. BRISTOL.

Harpersville, N. Y., Jan. 21, 1886.

KIND WORDS FOR GLEANINGS.

I like GLEANINGS better every time I get it. I let my neighbor read it, especially the 15th, or middle numbers, and he, too, thinks it splendid. Well, my neighbor who got a smoker when I did, for quitting the use of tobacco, I am sorry to tell you, has gone to using the weed again; and as soon as I can get up a club of a few names for GLEANINGS I will send the money for the smoker. I still "hold the fort" in regard to tobacco, and hope I always may.

Henton, Ill.

F. P. HISH.

I have taken GLEANINGS for the past six months, and I think it is a very valuable journal, especially Our Homes and also the Tobacco Column; in fact, it is a fine work all through, and is doing much good. May you live long to continue it. I have commenced keeping bees, and I enjoy it very much. I commenced last spring with two stands, and have gone into winter quarters with 11. I am making chaff hives for next season. May I ask what is the best permanent packing—chaff or sawdust? I have quit the use of tobacco, after using it for ten years, for good. If you think me worthy of one of your smokers you may send me one. If I ever use tobacco again I will send you \$5.00 for it.

Wm. D. SOPER.

Jackson, Mich., Dec. 1, 1885.

We prefer chaff to sawdust for packing.

KIND WORDS FROM OUR CUSTOMERS.

I have received the A B C of Bee Culture, and it is the best bee-book that I have seen.

Douglas, Putnam Co., O.

H. D. FRIEND.

THAT CALIFORNIA HONEY, FINE.

That California honey is fine. That is the first extracted honey that people ever saw in our town, as I have not used an extractor yet myself. Parties who have bought of that honey praise it wonderfully.

Ossian, Ind.

E. SALISBURY.

WELL PLEASED WITH THE GOODS.

I received the goods yesterday. They came through in good condition. I am well pleased with them. I think the smokers can not be excelled. Please accept many thanks for sending the order so promptly. I have found that, in sending for small orders, there is very little difference in either express or freight to this place, except in time.

St. Joseph, Mo., Feb. 27, 1885. JOSEPH F. AERY.

OUR JOB WORK GIVES GOOD SATISFACTION.

The package of circulars and envelopes came to hand yesterday, and they are a very fine job. We are highly pleased, both with the work and the very reasonable price charged, and we feel sure they will greatly help our trade. The cut which you had made for us is a beauty, and shows the working of the machine to perfection.

Wyoming, N. Y., Jan. 8, 1886.

G. W. STANLEY.

A PREMIUM FOR THE SECOND LARGEST CLUB FOR GLEANINGS FOR 1886.

Friend Root:—I will second Mr. P. L. Viallon's offer as per last issue of GLEANINGS, by offering to the bee-keeper who gets the second largest number of subscribers for your journal, between now and the 15th of June, one of my two-frame white-banded albino nuclei, with untested queen, to be delivered June 15, 1886. I will also give one of these nuclei and queens to the bee-keeper who sends me the first order for a nucleus after this date, and accompanied with cash (\$3.00), both to be delivered June 15, 1886.

CHAS. H. SMITH.

Pittsfield, Berkshire Co., Mass., March 4, 1886.

[Many thanks, friend S.; but your last offer, it seems to me, might not fall to the one who made the first order, but the one who lived nearest to you; for parties a good way off might not have a chance to have their orders reach you as soon as those near by.]

OUR HOMES.

So is he that layeth up treasure for himself, and is not rich toward God.—LUKE 12:21.

IT was Sunday evening, March 7, as I sat down to my secretary, where I read my agricultural papers during week days; but I didn't look at the agricultural papers at all, even though a great heap lay there awaiting my review; for I have always noticed that I don't feel as light-hearted, and free from any twinges of conscience, when I read such things on the Sabbath-day as I do when I read the *Sunday-School Times* or the Bible. I noticed that the lesson for the following week was from the book of Esther, and so I took my wife's little Bible and read the book of Esther clear through. By that time I remarked to her that I believed I would go to bed, as I was getting so sleepy. The print of her Bible is rather fine; but for all that, I have never used spectacles, even though I am 46 years old. May be the fine print made me drowsy before my usual bedtime. Perhaps it was in a sort of drowsy way that I asked God's blessing as we knelt together. I did the best I could, any way, under the circumstances, and I think that God knows that I am ready to work for him with my whole heart, whenever he calls. I do not remember any thing more until my wife startled me from a sound sleep by asking what that light was out of the window.

"Why Amos, there is a great fire! and as true as you live, it is our warehouse!"

I remember she said something about the poor horses and our Jersey cow; and as I sprang from the bed, wide awake in an instant, I meditated running to the scene of the disaster without dressing at all; but in a small part of a second I decided it would be better to clothe myself so I could stand the weather, even if some time were lost. I had many times planned what I should do if the factory should be discovered to be on fire; but I had never thought of a fire starting in the warehouse, for no fire is ever kept there, and no lantern, even, had been there for weeks. It is out in the lot, as it were, alone, except for piles of dry pine and basswood between it and the factory. As I emerged from the house, a horse turned and faced me and snorted. It was "Meg." "Thank God," I thought, "Meg has escaped, any way."

About this time I began to hear the hoarse call of "Fire!" from neighbor to neighbor, and the first thing to be done was to give notice to the fire company. I mentally decided that this was of more importance than going near the burning building, to try to save any property. Too much depended on every moment of time to trust to anybody, and I started on the run for the engine-house; but just as I had passed the factory, Neighbor H. shot past me on one of his horses, yelling worse than a Comanche Indian. I didn't know before that any horse could go so fast, nor that any human lungs could utter such unearthly shrieks; but I mentally thanked God for the horse, for Neighbor H., and for his powerful lungs as well.

Now I want to stop a moment to tell you

that Neighbor H. had a brand-new self-binder stored in a shed adjoining the warehouse, and this binder was not insured. Had he shot right down to the warehouse, with the assistance of neighbors there he could, very likely, have pulled his machine out. He thought of it on his way to the engine-house, but decided that the reaper would have to slide for the sake of saving the few minutes' time in getting the engine down to save my property. By the way, boys, doesn't that come pretty near loving your neighbor as yourself?

The boys who sleep in the factory were now awake, and yelling, after the example set them by "Uncle Hen," as Huber and the rest of the children call Neighbor H. I told one of them to stay about the factory, and then we went to see what could be done with the warehouse. You will hardly believe it, but by the time I got down there, it was pretty nearly a burnt building. Not only the million sections that we had been making ahead to fill your orders were helping to make the great conflagration, but there were all my tools and agricultural implements, and ever so many other things that represented the hard work of years past. Worse than all, a south wind drove the fire fiercely into the lumber piles, and it seemed for a time as if nothing could prevent it from sweeping clear to the factory, and licking that up too. How I ached and prayed to hear the roar of the fire-engine, indicating that a stream of water had started to the rescue! Finally it commenced coming, and hundreds of willing hands lifted the great hose toward the lumber piles. All at once the water stopped. In their zeal they had pulled the hose in two before it was fairly coupled together. A messenger must be sent back to the engine to stop the flow of water, while the hose was mended. Finally it began pouring a great muddy stream on the burning piles; but, to my great dismay, the fire seemed to burn just about as well with water on as it did without. The water was forced through the openings between the boards; but as soon as it stopped, even for an instant, out poured the flames again. The flames were within a few feet of our second warehouse containing our seasoned lumber and Simplicity hives; but it seemed as though even the fire-engine was powerless to stay it. But by this time men and women had formed lines, standing in the mud meanwhile, and pails were passed from one to the other, while this second warehouse was kept drenched on the roof, and along the sides and ends, by means of little fountain pumps. For hours they fought, making apparently but little headway; but the wind finally veered around a little, and a snowstorm set in, and—we, by God's providence, conquered.

Of late, my health has threatened many times to break down, and I began feeling that, if I would be of any use on the morrow, I must get some sleep. Many friends told me that this was the wise thing to do, after I was sure the fire was within bounds. I obeyed, and laid my head on the pillow. Now, it has always been said of me that one reason why I could stand so much mental strain was that I could go to sleep at any

time, day or night. Was I equal to the task now? I began to feel that I was not, until I questioned myself in regard to God's promises. Whose property was it that was burning up? I held the title to it, and it was all paid for. Was it mine, or the Master's? I had often told him, on bended knee, to take me, and all that I am and all that I have, into his care and keeping. Here was a chance to practice what I had preached. "Seek ye first the kingdom of God, and his righteousness, and all these things shall be added unto you," came into my mind; and again, "The Lord gave and the Lord hath taken away; blessed be the name of the Lord." If it was through any fault of mine that the building was burning, I might lie awake and worry, or get up and right the fault. If, however, it was something I had nothing to do with, why should I be troubled? If the property was all in God's hands, and he had seen fit to permit it to be taken away in this manner, why should I worry or lie awake when rest was so much needed? "Behold the lilies of the field; they toil not, neither do they spin, yet your heavenly Father feedeth them." And, again; in our opening text the man whom Jesus told about had great property, and was obliged to build even greater barns; but he expected to get all his happiness and contentment and peace from the contents of those barns. If my hopes were planted on the contents of the warehouse, and sections by the million, then might I lie awake; but if they were rooted and grounded on the rock Christ Jesus, why should I not sleep as well as in any other time, when duty and friends seemed to point out that I should husband my powers to help others, by taking rest? The above reasoning took me, perhaps, five minutes, and I went to sleep as if nothing had happened. When the fire-engine stopped for a few minutes, however, I sprung up instantly. My wife asked what the matter was. I told her they had stopped throwing water. Can you imagine how sweet the sound came as the booming commenced once more? I afterward learned they stopped long enough to disconnect the hose and put it *under* the railroad track instead of *over*, so it should not be cut by an approaching train. One other stoppage happened, but I awoke as promptly, and commenced dressing until they got started again. Even while sleeping soundly I kept in mind that, if our city water-works should give out, the fire would be again upon us.

When daylight came, the flames still burned high, but they were held captive. Sure enough, the firemen had exhausted the water from the reservoirs, and they were obliged to wait until afternoon so that more could be pumped, and then, and not until then, was the fire put clear out.

Perhaps I might say, briefly, that our loss amounts to some ten or twelve thousand dollars. Insurance covers of the above a little less than five thousand dollars. As we have a great abundance of seasoned basswood and pine that the fire did not touch; better machinery than we ever had before, and I trust, too, a better-disciplined force of willing hands, we shall not be much if any behind

on orders. The day after the fire, I gave the hands a talk at the noon service, reading from the book of Nehemiah about how they built up the walls when the gates were burned down by the enemy; and it seemed to take a happy hold of our little band of workers, so that we to-day, March 16, have quite a little pile of sections ahead, awaiting orders; and by working from daylight till dark, we think we can supply the wants of our customers, as if nothing of the kind had occurred.

Now, then, how did the building get on fire? Nobody knows. But in telling what we *do* know, it brings to me sadder thoughts,—a hundred times sadder, than does the thought of the loss of property or the loss of the lives of our domestic animals. When my wife inquired about our old trusty family horse, who has, for toward twenty years, been the faithful servant of the family, from the time when he used to bring my wife to church, from her home down by the river, until he took each new baby out for its first ride, allowing it to hold the lines, and drive, or to pick grass for him when he was older, sit astride his back, until he was, as it were, one of the family—when she inquired after the welfare of this faithful old friend, Uncle Hen showed her a blackened horseshoe. It was all he could bring her as a remembrance of the horse that had been her special property for so many years. The first neighbor who came on the ground when the building was burning, saw the doors of the warehouse open, and the two horses loose in the field. Poor old Jack! in his fright he ran back into the fire, and turned up to his old accustomed stall. Finding it full of smoke, with a snort he started for the other end of the warehouse. Being unable to get out there, he wheeled back and fell down inside, just before the door where he went in. Both horses had very strong leather halters on their heads, and the rings to the halters were found in the ashes by the manger, indicating, without question, as it seems to me, that somebody unbuckled the halters and slipped them off, turning the horses loose after they had removed the bar and opened the doors. It also seems as if the warehouse had been fired in different places. "An enemy hath done this," is the language of every one; but what *enemy* have I who should thus desire to destroy my property? taking the lives of the domestic animals, and endangering the whole of this part of the town? Whoever planned the scheme must have remembered that it was an exceedingly dry time, and that the wind was blowing pretty strongly right in the direction of those dry lumber piles.

Am I to blame for having such enemies? I may be, but it is not certain. It is a sad fact, that throughout our land there is a bitter feeling among some of the laboring classes against those who manage capital. Intemperance is a large factor in this trouble; and even now, while I write, the papers are full of accounts of strikes and trade-unions. How great, how *very* great, is the need of God's love in the hearts of both capitalist and laborer! Sometimes men who have been discharged for unfaithfulness, or

for dishonesty, threaten to, and even do, set fire to buildings. Shall one who employs many hands, therefore hesitate about reproving dishonest or unprofitable hands? or, when he discovers that the example of one, is corrupting to a large number, shall he keep him, for fear of what he may do? God forbid! Where should we be—what would become of the laws of our land—what would become of our nation, in fact, should we cowardly back down and let evil rule? Shall we lie awake nights, and worry, because of this kind of wickedness? By no means. What did the Master say in regard to this matter?

Blessed are ye, when men shall hate you, and when they shall separate you from their company, and shall reproach you, and cast out your name as evil, for the Son of man's sake.—LUKE 6:22.

He said, "Blessed are ye:" that is, when the persecution comes for *righteousness'* sake. The Savior lost his life because he reproved wicked men. John the Baptist was beheaded because he told a wicked king and the woman he lived with that it was a sin and a crime to do as they were doing. Two of our presidents have lost their lives because they held fast to that which was right. If this property has been burned because I have been vehement in regard to temperance—because I have been determined that no man or woman whose example is bad should persist in trying to lead these souls away from Christ, these whom I have been faithfully trying to lead to him, then should I rejoice, rather than to be cast down and sad. There is a strange verse in the sixth chapter of Luke, just after the one I have quoted. It reads this way:

Rejoice ye in that day, and leap for joy; for, behold, your reward is great in heaven; for in the like manner did their fathers unto the prophets.—LUKE 6:23.

When, for the first time after the fire, no one could find the friend whom I have spoken about in *Our Neighbors* for this month, suspicion was turned upon him, and we concluded, when that part of the journal was printed, that he did it while crazed with drink. I am glad to say, however, that, some days after, we had ample evidence that he left our town on foot, and started for Cleveland Sunday morning. It was hard for me to believe that humanity could furnish a single specimen of such ingratitude, and I believe now that he is my friend, and would not harm me nor my property. As I mentally go over the list of those with whom I have had trouble, and weigh each one with the best judgment God has given me, I can not think of one whom I can believe it possible could commit this awful crime because of personal differences—because I had refused to give such a one work, or because I had inadvertently, directly or indirectly, injured him or his business; and yet the sad fact still stands—somebody deliberately took down the stout bar across the doorway, swung the doors open, unbuckled the headstraps to the halters, turned the horses loose, and then set fire to the hay, straw, and combustible goods stored near it, even while he felt the stiff southern breeze blowing strongly toward the long rows of seasoned lumber piles, on each side of the railway track, from

the warehouse to the factory. Sin is in the world. We can not hide nor disguise the fact, that, so long as we stay here, we have got to cope with the powers of darkness; we have got to cope with human hearts where Satan has taken such full possession that not a spark of mercy or solicitude for any is left. It is a hard fact, dear friends; but, be ye not cast down nor discouraged. The Master has said, "In the world ye shall have tribulation; but be of good cheer; I have overcome the world." If, by kindness and good will, you can win men from their evil ways, rejoice and thank God; but if it all results apparently to no purpose, and if you succeed only in being hated because you are upright, there is a promise yet—"Rejoice ye in that day, and leap for joy, because of your reward in heaven."

Now a word in closing, in regard to the loss of property. If you are working for property because you expect to get happiness from it, you will have trouble and disappointment all the days of your life; and the more property you have, the more disappointment you will get. I speak from experience. If, however, property is held only in trust, and is recognized as belonging to the Master, and is used for the good of the people, and for his sake, then shall it give joy and pleasure. And now believe me when I tell you that it makes very little difference whether you have much or little, if it is held in the right way. If thousands are swept away in an hour, through no fault of your own, go on doing business carefully and economically, as if nothing had happened; save the pennies where you can save them, but let thousands slide without a murmur where you can not save them. Get yourself fully possessed of the idea that you are simply a faithful steward, and nothing more, and then you are all right. But be sure that the idea does not get in, that, because you *are* a steward, you are to be less earnest and zealous in caring for what God has intrusted to your care. Get selfishness out of the heart; and while you use care and economy—even such care and economy that people call you stingy, let the care and economy be for the sake of helping the people and helping the general business of the world, and not that you may make money and get rich. Labor to enrich others, rather than to enrich yourself. The incident I have given in the fore part of this paper, where Uncle Hen let his self-binder, that was *not* insured, burn up in order to save my property that *was* insured, strikes somewhat on the same point. Unless the fire company stopped the conflagration speedily, not only would I lose far beyond my insurance, but the whole community would suffer a heavy loss.

Now while I am about it, I want to say that this very trait of character, that enables one to forget self and selfish interests, is the surest way in the world to make money. It puts you where God can use you, and where he can use you for great ends. Mueller's life is something in this line. And you will remember that Jesus said, "Whosoever will save his life shall lose it; but whosoever shall lose his life for my sake and the gospel's, shall save it."

Now, please let us be careful that we make no mistake here. Some of the friends have thought us perhaps more vehement in the collection of little debts than the case demanded. If one can spare thousands in a loss by fire, why should he not forgive little debts, when people have been unlucky by sickness or bad calculations, and are unable to meet them? My friends, a true servant of God should try to do business in a way that will be most conducive to the saving of souls, and of most benefit to his fellow-men. Then the question also comes up, Does it make a man better, or does it really *help* him to let him slip out of his just obligations? I do not think it does. I have been over this ground before, through these Home Papers, and I try it over and over again in the experiences of every-day life. I have done people good a great many times, and have even helped them to come to Christ, without question, by giving them employment; but the cases are few and far between where I have conferred a lasting blessing, or have even been the means of giving any real help, by *giving money*, outright, without equivalent. It has seemed to me as if God had said, "No, no, child, don't do it;" and it is about the same where I have let people slip out of paying that which they had honestly and fairly promised to pay. Over and over again I have had reason to think it was to their hurt; therefore it seems to me it is a duty to our fellow-men, with perhaps a few exceptions, to insist that they shall do, according to promise, whatever is in their power. If they are behindhand and unfortunate, by no means crowd or distress them: give time; and if circumstances seem to indicate that it is best, let them pay interest. But to let people repeatedly slip out of meeting their just obligations, is to let them contract a disease that, like theft or intemperance, or an evil temper, sooner or later carries them down to ruin. Now, then, "seek ye first the kingdom of God, and his righteousness" in all that you do; and having done that, be not afraid of all that the powers of darkness can bring to bear. They may take away property; they may even take away life; but God's promises are sure and solid.

And fear not them which kill the body, but are not able to kill the soul; but rather fear him which is able to destroy both soul and body in hell.—MATT 10:29.

CONVENTION NOTICES.

The Southern Illinois Bee-keepers' Association will hold its third annual convention, Thursday, April 8, 1886, at 10 A. M., in Teague & Harris' Hall, Du Quoin, Perry Co., Ills. A general invitation is extended to all. F. H. KENNEDY, Sec.
Du Quoin, Ill.

The semi-annual meeting of the Western Bee-keepers' Association will be held in Kansas City, Mo., Apr. 20, 26, 1886. Those connected with the Association are desirous of making this meeting more interesting than any of its predecessors, and therefore invite all who can to be with us. It is intended to have essays read on the leading thoughts in bee culture, which will be announced as soon as arrangements are made. Let a few who have bees, queens, bee-fixtures, etc., bring them if possible. Due notice will be given in regard to a hall.
Independence, Mo. P. BALDWIN, Sec.

The officers and members of the Texas State Bee-keepers' Association send fraternal greeting to the members of all other bee-keepers' associations throughout the State of Texas and all North America, and extend to them, and all interested in apiculture, a most cordial invitation to meet us at the bee-farm of Judge Wm. H. Andrews, McKinney, Collin Co., Texas, on the 5th and 6th of May. Indications for a grand meeting

are growing brighter, and every effort will be made to render this the most stupendous meeting of bee-men ever held in the State. Kind treatment to all, and no hotel bills to pay. So, come one come all, as we promise you something new.

B. F. CARROLL, Sec. Texas State B. K. A.
Dresden, Texas, March 5, 1886.

The Bee-keepers of Manitowoc and adjoining counties will hold a convention at Kiel, Manitowoc County, on the 25th day of March, 1886, by the name of the "Lake-Shore Central Bee-keepers' Convention."
School Hill, Wis., March 1, 1886. JESSE H. ROBERTS.

The bee-keepers of Stark Co., met in Grange Hall, Canton, O., Mar. 2, 1886, and effected a temporary organization by electing Jacob Oswald, Pres.; J. H. Smith, of Canton, Vice-Pres., and Mark Thompson, of Canton, Sec'y and Treas. Much interest was manifested, and we anticipate a strong organization. The bee-keepers of Stark and adjoining counties are earnestly requested to meet at Grange Hall (over Farmers' Bank), Canton, O., Tues., Apr. 13, 1886, for the purpose of effecting a permanent organization.
Canton, Ohio. MARK THOMPSON, Sec'y and Treas.

The next meeting of the Patsulzee Bee-keepers' Association will be held at Arcadia, Ala., March 29, 1886.
Raip Branch, Ala. M. G. RUSHTON, Sec.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER.
MEDINA, O.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, MAR. 15, 1886.

The Lord shall preserve thee from all evil.—PSALM 121:7.

DISCOUNTS.

No discounts for ordering early in the season, after April 1. Until April 1, an extra 2 per cent.

BLUEBERRY-PLANTS.

Will those who purchased the blueberry-plants from the advertisements which appeared in GLEANINGS a year ago, please report how they succeeded?

CROWDED OUT.

SEVERAL valuable articles from some of our regular contributors are this month crowded out. This is largely owing, perhaps, to the extra number of advertisements; and to meet the demand we shall put in eight extra pages in our issue for April 1.

NO DELAY IN FILLING ORDERS.

At this date, March 17, we have caught up on every thing that was burned in our warehouse, in the way of supplies of our own manufacture; and all other goods that are burned are either here or are expected daily, so there will probably be no delay in filling any orders the friends may have had in mind to send us. One hundred thousand sections are now ahead of orders, and we expect to fill every order promptly (with a few rare exceptions), just as we have been doing for the past year and a half.

MAPLE SUGAR FOR FEEDING BEES AND OTHER PURPOSES.

We have in stock about a ton of maple sugar, one year old, which should be worth, say, 8, 9, and 10 cts. per lb. (according to grade), if new, but in consideration of being one year old, we will sell it for 7, 8, and 9 cts. As it has been nicely kept over, it is

just about equal to the new for any purpose; and the cheaper grade is as handy for bees that need stores, or stimulating, as any thing we can have. In fact, we have never had better success with any sort of feed than we have had with cakes of maple sugar placed right over the cluster. A strong colony will take care of a tin-pan cake.

LAWN-MOWERS CHEAPER.

THE little lawn-mower that pleased so much last season will now be \$5.50, instead of \$6.00. This cuts 10 inches wide, but we can now furnish one of the same kind, cutting 12 inches wide, for \$6.00. The 10-inch one runs a little easier, of course, and it may therefore be preferable for a lady or for a child.

POULTRY-NETTING, JOB LOT.

WE have just secured some job-lot pieces of poultry-netting, which we can sell at the regular price of one cent per square foot, and you need buy only a small quantity, if that is all you want. A printed slip, giving the widths and the number of square feet in each piece, will be mailed on application. The different widths are as follows: 12, 18, 24, 30, 36, 42, 48, 60, and 72 inches. Any one who takes two or more pieces can have a discount of 5 per cent; 10 or more, 10 per cent.

MAPLE SYRUP.

A FINE article of maple syrup, such as is now made by the latest improved evaporators, is, in my opinion, one of the most delicious sweets of any thing that God has ever given his children: yes, better than any honey ever gathered, to my notion. We have just purchased the entire production of one of our neighbors, who has been one of the most successful and progressive maple-sugar makers. This syrup weighs 11½ lbs. to the gallon, and it is put up hot, just as it comes from the evaporator. We are now using some for our table, that is one year old, and it has apparently all the fine aroma and freshness that it had when first put up. Price \$1.00 per gallon where cans can be returned, after the syrup is used out. Where we ship it so far that the cans can not be returned, the price will be \$1.10, can and all. In lots of 10 cans, an even dollar each; 100 cans, \$95.00. Maple syrup of former years, made in the old way, in cans holding 3¼ quarts, 75 cts. each.

PEAVINE, OR MAMMOTH RED CLOVER.

MANY are inquiring as to the results obtained from this large red clover for bee-pasturage, as well as for other purposes. I believe the reports indicate that it unquestionably yields, some seasons, very large quantities of beautiful clover honey. As the honey-tubes are, however, deep, and difficult of access, bees seem to prefer to work on other sources when they can; at least, it does not seem to attract the bees every season so invariably as does alsike and white clover. As for hay and feed, it yields, unquestionably, the largest amount of any clover known; but the quality is coarse, and is not generally considered quite equal to the hay from alsike or common red clover. For turning under, however, it yields more tops and more root than any other clover known, and on this account it plays a very important part in farming operations. Our agricultural papers, almost with one assent, declare that turning under heavy crops of clover is one of the surest and cheapest ways of bringing up the fertility of the soil, or of getting manure.

FIRST IN THE FIELD!!

The Invertible Bee-Hive

Invertible Frames,

INVERTIBLE SURPLUS - CASES,

TOP, BOTTOM, AND

ENTRANCE FEEDERS.

Catalogues Free. Address

J. M. SHUCK, DES MOINES, IOWA.
434b

ROSE COMB WHITE LEGHORN EGGS.
6d 15 for \$1.00; 30 for \$1.60; 45 for \$2.00.
C. G. FENN, Washington, Conn.

SYRIAN AND ITALIAN QUEENS,

Before June 15, tested, \$2.50 each; after, \$2.00 each. Untested, before June 15, \$1.00 each; after, single queen, \$1.00; six for \$5.00; twelve for \$9.00.

ISRAEL GOOD, Sparta, Tenn.

Italian Queens sent by Mail.

Untested queens from imported mother, April, \$1.25; May, June, and July, \$1.00. After April, per half-dozen, \$5.00. E. CRUDGINGTON & SON,
6tfdb Breckinridge, Stephens Co., Texas.

Pure ITALIAN BEES and QUEENS

FOR SALE.

QUEENS BRED FROM IMPORTED STOCK.

Untested queen, just commencing to lay, - \$1.00
Furnished by the 10th of May.

Tested, \$2.00. Select tested, \$2.50. Furnished by the 16th of May.

One-half pound bees, 90c. Furnished after the 1st of April. Cage included.

Two-frame nucleus, consisting of ½ lb. of bees, 90c, two frames partly filled with brood, 90c, and one nucleus hive, 40c. Total \$2.20; guaranteed.

All bees, queens, and nuclei are to be safely delivered at your nearest express or postoffice, you paying all express charges. Order early. First ordered, first served.
6d C. F. UHL,
Millersburg, Holmes Co., O.

C. W. Phelps & Co's Foundation Factory.
SEE ADVERTISEMENT IN ANOTHER COLUMN.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

Black and hybrid queens for sale, from 15th of May during the season. Black queens until June 20th, 50c; hybrid, 75c.

J. A. BUCKLEW, Clark's, Ohio.

FOR SALE.—7 or 8 good Italian queens from a pure mother. They are mated with black drones; 50 cts. each. Address J. T. HIGHTOWER,
6 Walnut Hill, Arkansas.

HEADQUARTERS IN THE SOUTH-EAST

FOR THE MANUFACTURE OF

**Bee-Hives, Sections, Section-Cases,
FOUNDATION, AND OTHER APIARIAN SUPPLIES,**

At greatly reduced prices. Send for our new Circular with description of the

"SUCCESS HIVE,"

Which is fast gaining the favor of many bee-keepers.

ALBINO QUEENS & BEES FOR 1886.

It should be remembered that we are also headquarters for the "Albino Queens." We also breed Select Italians.

Address **S. VALENTINE & SON,**
Hagerstown, Wash. Co., Md.**SECTIONS.**

Western headquarters for bee-men's supplies. Four-piece sections, and hives of every kind, a specialty. Flory's corner-clamps, etc. Orders for sections and clamps filled in a few hours' notice. Send for sample and prices.

M. R. MADARY,
22 21db Box 172. Fresno City, Cal.**FOR SALE!****SIX HORSE-POWER PORTABLE UP-
RIGHT ENGINE AND BOILER.**

Boiler has 52 2-inch flues; is a splendid steamer, oscillating cylinder, 26-inch band-wheel, all complete with injector, Picking governor, glass water-gauges, and all complete with whistle, feed-pipes, 20-ft. smoke-stack, etc. This engine is no cheap concern. It was built in Chicago, and has been used but a little; reason for selling, I need more power in my wind-mill business. This is a nice rig for bee-hive work. For particulars, address 67d

B. G. WEBSTER, Blaine, Boone Co., Ill.**SURE TO SEND**
FOR MY NEW**PRICE LIST FOR 1886,**
Before purchasing your Bee-Sup-
plies. Cash paid for Beeswax. 6d
A. B. HOWE, Council Bluffs, Ia.**SUPPLIES!****HIVES, SECTIONS, CASES, CRATES, ETC.
COMB FOUNDATION, ITALIAN BEES
AND QUEENS, BRED FOR HON-
EX-GATHERING.**Wax wanted. Send for free Catalogue to
6ttd **REYNOLDS BROS., WILLIAMSBURG, WAYNE CO., IND.****WHOLESALE AND
—RETAIL— FOUNDATION.**Warranted good as any made at the following prices:
All-in-one-piece V-groove 1 to 25 lbs. per lb. 42c.
Sections, \$1.00 per 100; 25 " 50 " " 40c.
for larger lots write for 50 " 100 " " 39c.
prices. Wax worked very 100 " 500 " " 38c.
cheap. Send for price list Thin, 6 cts. per lb. extra.
of other Supplies. **M. H. HUNT,**
6d Near Detroit. **BELL BRANCH, WAYNE CO., MICH.****30 COLONIES OF****ITALIAN AND HYBRID BEES
FOR SALE CHEAP.**Bees are in 1½-story L. and Simplicity hives; also empty Hives and Combs, Extractors, Section-racks, Wide frames, 1500 4¼x4¼ Sections, etc. Write for particulars to **J. A. BUCKLEW,**
6ttdb **Clarks, Coshocton Co., Ohio.****\$350. ATTENTION. \$350.
APIARY FOR SALE.**50 swarms of splendid bees in 2-story Langstroth hives, *comb-honey outfit complete*, in location where bees never freeze or starve. Will pay for themselves the first year. Combs all built on fdn., and wired. A splendid chance for a live man to gain a livelihood in sunny California. Reason for selling, *must have money.* Address 678d**DAVIS BROS., Box 166., Selma, Cal.**

Reference, Judge Fowler, Selma, Cal. This is an irrigated district, and a complete failure is unknown. This climate is splendid for those suffering with lung complaints. Inclose stamp. Also a small farm for sale.

**J. P. CONNELL,
HILLSEORO, HILL CO., TEX.,**

Makes a specialty of rearing pure Italian queens, and of shipping bees in two, three, and four frame nuclei. Tested queens in March and April, \$2.50; after, \$2.00. Untested queens in April, \$1.25; after \$1.00. Satisfaction guaranteed. 67911d

SEND FOR CIRCULAR.**BEES BY THE POUND. READY NOW.**Price \$1.25 per ½ pound. Address
678d **N. R. FITZ HUGH, JR., Picolata, Fla.****VIRGINIA LAND AGENCY.**Cheap Farms. Splendid climate. Short Mild Winters. Good Markets. Descriptive Land List Free.
6-11d **GRIFFIN & JERVIS, PETERSBURGH, VA.****BEES IN IOWA. —SEE FOSTER'S—
ADVERTISEMENT.****DADANT'S FOUNDATION FACTORY, WHOLE-
SALE AND RETAIL.** See advertisement in
another column. 3btfdd**→BEE-KEEPERS' : SUPPLIES.←**Having Just Completed our Large Factory we are Prepared to Offer all Kinds of
Bee-Keepers' Supplies at**→:BED-ROCK : PRICES.←**

— WE MANUFACTURE —

**5 STYLES OF HIVES,
6 STYLES OF HONEY-EXTRACTORS,
7 STYLES FOUNDATION, ETC.****2 STYLES OF SMOKERS,
2 STYLES OF WAX-EXTRACTORS,
"V" GROOVE SECTIONS, ETC.****WE GUARANTEE OUR WORK FIRST CLASS.**

Liberal Discounts on Large Orders. Send a Postal Card for Our ILLUSTRATED CATALOGUE.

FRUIT AND HONEY BEARING TREES and PLANTS.

For \$1.00 I will send by mail, postpaid, any one of the following:

- 100 *Catalpa-speciosa* Trees. As posts, they have stood 50 years, perfectly sound; good bee-tree.
 - 100 Box-elder, nice shade-tree, and bees work on them early in the spring.
 - 200 Golden-willow cuttings; make a beautiful tree; used for tying, etc.
 - 25 Gregg Black-cap Raspberry, best variety.
 - 50 Turner, a red Raspberry, perfectly hardy, always bears, and equal to white clover for honey.
 - 25 Snyder Blackberry, the king of berries. Never winter-kills, never fails to bear.
- Send for Catalogue to RANTOUL NURSERY,
4-5-6 d. Rantoul, Ill.

LOOK HERE.

What you can get for \$3.00. A 3-frame nucleus on L. frames, containing two frames of brood, Italian queen, frames covered with bees: 75 Italian queens will be sent to fill first orders. Such nuclei as I send will not only grow into strong colonies, but will doubly pay all expenses with surplus honey. A great many customers have reported over \$8.00 from each nucleus. If you want full colonies, or bees in any form except by the pound, write me before ordering elsewhere. Orders will be filled from the 25th of May to June 15. 5tfdb

DAN WHITE, New London, Huron Co., O.

FOR SALE.

One second-hand fdn. mill that will roll sheets 14 inches wide. The mill is at present in New Hamburg, Ont., Can. The original price on it was \$40.00, but we will now sell it at half price, or \$20.00.

Also one exactly like it, owned by W. W. Bliss, of Duarte, Los Angeles Co., Cal. There is nothing wrong with these mills, except that the rolls are of smaller diameter than those we now make, in consequence of which they do not make quite so thin fdn. right in the middle of the rolls as those made now with rolls of a larger diameter. They will, however, roll narrow sheets equal to any, and will roll sheets a foot wide; but when of so great a width, the center is a trifle thicker, as explained above.

Also one 9-inch Dunham mill, second hand. The mill has, however, been completely fitted up, painted, and varnished, and is, to all appearances, both in looks and quality of work, equal to a new one. Price \$20.00. The list price of a new mill of this kind is \$40.00.

Also two 10-inch mills of our own make, that were taken from parties who were wanting mills of longer rolls. These have been finished, and we pronounce them in every respect almost as good as new. Price \$15.00 each.

Also one 10-inch mill, Oim make, fixed over so as to do about as good work as it ever did. Price \$12.00.

A. I. ROOT, Medina, O.



Orders filled the day they are received, except for bees and queens. 4tfdb

THE CANADIAN BEE JOURNAL.

WEEKLY, \$1.00 PER YEAR.

JONES, McPHERSON & CO., Publishers, Boston, Ontario, Canada.

The only bee journal printed in Canada, and containing much valuable and interesting matter each week from the pens of leading Canadian and United States beekeepers. Sample copy sent free on receipt of address. Printed on nice toned paper, and in a nice shape for binding, making in one year a volume of 832 pages. 9tfb

DADANT'S FOUNDATION

is asserted by hundreds of practical and disinterested bee-keepers to be the cleanest, brightest, quickest accepted by bees, least apt to sag, most regular in color, evenest, and neatest, of any that is made.

It is kept for sale by Messrs. A. H. Newman, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; Chas. H. Green, Berlin, Wis.; Chas. Hertel, Jr., Freeburg, Ill.; Ezra Baer, Dixon, Lee Co., Ill.; E. S. Armstrong, Jerseyville, Illinois; Arthur Todd, Germantown, Philadelphia, Pa.; E. Kretschmer, Coburg, Iowa; Elbert F. Smith, Smyrna, N. Y.; D. A. Fuller, Cherry Valley, Ill.; Clark Johnson & Son, Covington, Kentucky; J. B. Mason & Sons, Mechanic Falls, Maine; C. A. Graves, Birmingham, O.; M. J. Dickason, Hiawatha, Kan.; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; J. A. Humason, Vienna, O.; G. L. Tinker, New Philadelphia, O.; J. M. Shuck, Des Moines, Ia.; Aspinwall & Treadwell, Barrytown, N. Y., and numerous other dealers.

Write for samples free, and price list of supplies, accompanied with 150 Complimentary and unsolicited testimonials, from as many bee-keepers, in 1883. We guarantee every inch of our foundation equal to sample in every respect.

CHAS. DADANT & SON,

3btfdb Hamilton, Hancock Co., Illinois.

WE WILL SELL

Chaff hives complete, with lower frames, for \$2.50; in flat, \$1.50. A liberal discount by the quantity. Simplicity hives, Section Boxes, Comb Fdn., and other Supplies, at a great reduction. We have new machinery, and an enlarged shop. Italian Bees and Queens. Send for Price List. 23 22db

A. F. STAUFFER & CO., Sterling, Ills.

WANTED.

Names of parties wanting first-class dovetailed honey-sections, to whom samples will be sent on receipt of address. Also crates in season. A perfect iron section-box former sent for \$1.00, and satisfaction guaranteed. Geo. R. Lyon.

4-9db GREENE, CHENANGO CO., N. Y.

CONTRACTS WANTED

-WITH-

SUPPLY DEALERS

FOR NEXT SEASON'S STOCK OF GOODS.

CHAFF, STORY AND HALF CHAFF, AND SIMPLICITY HIVES, SMOKERS, EXTRACTORS, COMB FOUNDATION, FRAMES, SECTIONS, BOOKS, ETC.,

At wholesale and retail. Unexcelled facilities. Circulars and estimates free. Successors to S. C. & J. P. Watts. Sta. Kermore, B. C. C. & S. W. R. R.

WATTS BROS., Murray, Clearfield Co., Pa.
1tfdb.

LOOK HERE

To introduce my strain of pure bright Italians, equal to any in the United States, I will offer tested queens, \$1.00 each; extra fine, selected, \$1.50 each; one-frame nucleus, consisting of one extra select queen, one frame of brood, 1/2 lb. bees, for \$2.00. If you want any bees, send me your address on postal and I will send you sample by return mail. Beeswax or honey taken in exchange. 22tfdb

THOMAS HORN,

Box 691, Sherburne, Chen. Co., N. Y.

ITALIAN BEES IN IOWA.

60 c. to \$1.00 per lb. Queens, 30 c. to \$2.50. Order from new circular, sent free. 6tfdb

OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

EXCHANGE DEPARTMENT.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad. in this department, or we will not be responsible for any error.

WANTED.—To exchange for bees, or pure-bred poultry, 10,000 Mammoth-Cluster and Turner Raspberry-plants, \$1.00 per 100, \$6.00 per 1000; also 20,000 Strawberry-plants, Crescent Seedling, Cumberland Triumph, Sharpless, and Glendale; 75 cts. per 100; \$4.00 per 1000.
5-6d W. J. HESSER, Plattsmouth, Neb.

WANTED.—To exchange bees for a Barnes-saw, foundation-mill, or Light Brahma fowls; or I will sell bees by the pound; also queens in season.
JAMES P. STERRITT,
5-6-7-8d Sheakleyville, Mercer Co., Pa.

WANTED.—To exchange Simplicity hives for a circular-saw mandrel for hive-making by steam power. Will sell hives (in the flat) cheap for cash, or will take one-third pay in full colonies of bees. Hives in any quantity to suit customers, up to a carload per day.
G. A. FARRAND,
3tfdb Rockport, Cuyahoga Co., O.

WANTED.—To exchange, caligraphs Nos. 1 and 2, telegraph-instruments, white, buff, and spotted rabbits, coal-oil stoves, for bees, supplies, or high-grade poultry. T. E. HANBURY & SON,
6d Newspaper-Advertising Agents, P. O. Box 98, Atlanta, Ga.

WANTED.—To exchange large, good piano for bees; also pure-bred B. Leghorn and Partridge Cochins eggs, for bees by the pound.
5-6d L. HARRIS, Box 304, Greenville, Ill.

WANTED.—To exchange an Adams horse-power, nearly new, and all complete, just right for hive-making, for fdn., or anything useful to me, or will sell it for \$30.00 cash. C. W. COSTELLO,
6d Waterboro, York Co., Maine.

WANTED.—To exchange or sell. Eggs for hatching, from 3 varieties of high-class fowls, selected stock, costing from \$12 to \$20 per pair. Brown Leghorns, Silver-Spangled Hamburgs, and Plymouth Rocks. Eggs, per setting of 13, \$2.00. Safe delivery and a fair hatch guaranteed. (Will exchange for beeswax delivered here at 25c per lb.) Circulars of bees and poultry free. Five settings of Brown Leghorn eggs for \$5. Address
6tfdb A. H. DUFF, Creighton, Guern. Co., O.

WANTED.—To exchange one W. Moore & Co.'s double-barreled breach-loading shot-gun (rebounding-bar locks, good as new), and one silver hunting-case watch, nearly new (Columbus Watch Mfg. Co.'s make) for foot-power saw, bee-keepers' supplies, or choice poultry or Italian bees.
6tfdb J. A. BUCKLEW, Clarks, Ohio.

WANTED.—To exchange for cash, bright, clean, pure yellow comb fdn. Heavy, 45c. per lb. Thin, 52c., any quantity. Our own make.
6d MODEL BEE-HIVE CO., W. Philadelphia, Pa.

WANTED.—To exchange a caligraph type-writer, latest attachments, nearly new, perfect order, cost 70 dollars, for bees in hives. A. H. WILCOX,
6-1 La Grange, Ohio.

WANTED.—To exchange bees or honey for a one or two horse power saw-mandrel, lawnmower, or corn-sheller. P. W. STEVENS,
6d Moore's Hill, Dearborn Co., Ind.

WANTED.—To exchange eggs from standard pedigreed and registered White and Brown Leghorns of the celebrated Smith and Bonney strains, for bees, queens, and supplies.
6-7d L. J. MCNAUGHTON, Chardon, Geauga Co., O.

WANTED.—To exchange or sell, a few Mammoth Bronze turkeys, young Toms, 20 to 25 lbs.; young hens, 14 to 16 lbs.; first-class stock; also 20 swarms of bees in chaff hives, or exchange for beeswax at 25 cts. per lb.
6d L. GORTON, Salem, Washtenaw Co., Mich.

WANTED.—To exchange foundation for wax.
57db B. CHASE, Earlville, Madison Co., N. Y.

WANTED.—To exchange one Barnes foot-power combined saw with scroll saw attachments, for foundation mill or press. Reasons for selling, I have steam power. A. D. ARMSTRONG,
6d Hudson, Lenawee Co., Mich.

WANTED.—To exchange nursery stock, especially evergreens, for Italian bees, queens, and two-frame nucleus with Italian bees and queen.
678d R. A. LEWIS, Cherokee, Iowa.

WANTED.—To exchange. I have a complete printing-office, consisting of 20 fonts of general job type, nearly new, some never used; 18 lbs. brevier, for circular work, all in job cases and cabinet; one Cottage hand cylinder-press, 6x10 chase, one Novelty press, 10x14 chase; composing stick, rules, leads, etc. Cost over \$200. I will take fdn., sections, cash, or other goods. Make an offer.
5tfdb E. KRETCHMER, Coburg, Iowa.

WYANDOTTE and Houdan cockerels; good birds at low prices, to close out surplus; also one White Wyandotte cockerel; or I will exchange for white extracted honey. Eggs for hatching, \$2.50 and \$1.50 per 13. J. EVANS,
6-7 Box 89, Schaghticoke, Rens. Co., N. Y.

WANTED.—To exchange good cabinet specimens of minerals, sea-shells, California curiosities, or other natural-history specimens, for untested Italian queens. Correspondence desired. Box 49. 6d ALFRED W. HINDE, Anaheim, Los Angeles Co., Cal.

WANTED.—To exchange, Simplicity or other hives for good section or extracted honey. Will sell hives (in the flat) cheap for cash, or will take one-third pay in full colonies of bees, or poultry. Hives in any quantity to suit customers, up to a car-load per day.
G. A. FARRAND,
3tfdb Rockport, Cuy. Co., Ohio.

WANTED.—To exchange Italian bees, brood, and queens, for fdn., beeswax, type-writer, or any thing having a standard market value. 6tfdb THOMAS HORN, Box 691, Sherburne, Chen. Co., N. Y.

WANTED.—To exchange combination telegraph-instrument for Italian queens in June.
5d F. D. WOOLVER, Munnsville, Mad. Co., N. Y.

WANTED.—To exchange white-poplar sections, sandpapered on both sides, or any kind of bee-keepers' supplies, for comb or extracted honey. Send 5c. for sample section; 50-page circular free.
6tfdb J. B. MASON & SONS, Mechanic Falls, Androscoggin Co., Me.

WANTED.—To exchange, four Plymouth Rock pullets and one cockerel, full blood (Corwin strain), for 2000 4x4 1/4 V-groove sections, 7 to the ft. preferred, or \$10.00 cash. FRANK A. EATON,
6d Bluffton, Ohio.

WANTED.—To exchange apiarian supplies at any time, or nuclei in June, for extracted honey, extractor, or foundation-mill. Circulars free.
67d C. P. BISH, Petrolia, Butler Co., Pa.

WANTED.—To exchange S. C. Brown Leghorn eggs or P. Rocks of pure breed for Pekin Duck eggs or other eggs of pure-bred fowls; also for sale, \$1.00 for 15, 36 for \$2.00. DAVID LUCAS, Jewett, O.

WANTED.—To exchange a good 4 h. p. engine for a planer, for beeswax at market price, or for cash. O. H. TOWNSEND, Alamo, Kal. Co., Mich.

WANTED.—To sell or exchange for apiarian supplies, extracted honey, strawberry-plants, and basswood-trees. CHAS. T. GEROULD,
6d East Smithfield, Bradford Co., Pa.

HORN PAYS EXPRESS CHARGES SEE ADVERTISEMENT.

WANTED. A good-sized apiary to work on shares or for salary by an experienced young man of 22 years. Write with proposition to 6d F. F. ROE, Jordan, Ind.